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ABSTRACT

Compiled are 35 abstracts of recent master's and doctoral theses and major project research works in environmental education and communications. Most of the citations included describe work completed in the 1983-84 academic year. Abstracts are organized into seven topic areas: (1) site analysis--descriptions and development plans for areas to be used for environmental education; (2) parks and camps (users and interpreters)--studies dealing with park and camp programs, especially user characteristics and interpretive techniques; (3) media communications--examinations of the effectiveness of various forms of media; (4) pupil-centered studies--research dealing with student characteristics; (5) teacher-centered studies--research on teacher and interpreter training, attitudes, and behavior; (6) citizen-centered studies--research on attitudes, values, and involvement of citizens in environmental education; and (7) studies dealing with environmental education policy, administration, and philosophy, as well as some experimental studies which cannot be included in the other categories. Title, author, and institutional source are provided for each abstract. An index to entries in previous volumes and an alphabetical list by state of institutions offering graduate programs in environmental education and communications are also provided, as is a list of such institutions in Canada. Each entry includes a brief description of the program and, when applicable, the degree(s) offered. (JN)

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RECENT GRADUATE WORKS AND PROGRAMS IN ENVIRONMENTAL EDUCATION AND COMMUNICATIONS

Prepared for the

North American Association for Environmental Education

December 1984
Volume VII

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CONTENTS

Introduction. ii

Site Analysis 1

Parks & Camps: Users & Interpreters. 5

Pupil-Centered Studies. 8

Teacher-Centered Studies. 12

Citizen-Centered Studies. 16

Resources, Administration & Other 21

Index to Past Volumes 27

Graduate Programs in Environmental Education and Communications 47

Copies of this volume, as well as the 1978 through 1983 editions, are available from: NAEE, P. O. Box 400, Troy, Ohio 45373 for $5.00 for NAEE members and $6.00 for non-members.

If you wish to contribute to future publications, please contact Dr. Jody M. Hines, Department of Teaching, University of Northern Iowa, Cedar Falls, Iowa 50613-3593.

INTRODUCTION

Recent Graduate Works and Programs in Environmental Education and Communications is Volume VII in a series that continues to attract and publish relevant theses and project abstracts. This reference work is a cooperative effort of the North American Association for Environmental Education and the University of Northern Iowa.

The publication's title reflects an active desire to stimulate interest in nontraditional environmental education research that has escaped the attention that such a growing body of works deserves. At the same time, the publishers remain committed to reproducing abstracts of masters theses and doctoral dissertations that also enrich the environmental education field.

Abstracts included in this volume are organized into seven categories: (1) Site Analysis--descriptions and development plans for areas to be used for environmental education; (2) Parks and Camps: Users and Interpreters--studies dealing with park and camp programs, especially user characteristics and interpretive techniques (3) Media Communications--examinations of the effectiveness of various forms of media; (4) Pupil-Centered Studies--research dealing with characteristics of pupils; (5) Teacher-Centered Studies--research focusing on training, attitudes, and behavior of teachers and interpreters; (6) Citizen-Centered Studies--research dealing with the attitudes, values, and involvement of citizens in environmental problems; (7) Resources, Administration and Others--studies dealing with environmental education policy, administration, and philosophy, as well as some experimental studies which cannot be included in the other categories.

The annual request for abstracts begins in the spring of the publication year. Explanatory letters and printed abstract forms are mailed to an ever-increasing list of graduate departments of environmental education, park administration, natural history interpretation, environmental studies, communications, journalism, and other potentially related fields. This broad coverage is designed to encourage responses from a range of programs which generate research related to environmental education and communications.

Volume VI of Recent Graduate Works added a new feature, an Index to Past Volumes. This feature has been continued here in Volume VII so that readers may quickly survey published abstracts by year and subject category for itmes of potential interest. The relevant abstracts may then be located and studied in the appropriate volumes. (Volume I was published in 1978.) In addition, this publication offers an expanded directory of graduate

programs in environmental education and communications. It is hoped that these aids increase the value of Recent Graduate Works as a reference tool for educators, administrators and students.

The lifeblood of these volumes is comprised of the institutions they feature and the readers who utilize them. At its best, the annual publication can operate on the leading edge of the environmental education field, documenting research trends and educational opportunities. The publishers wish to thank the contributors to this year's issue. They and others are encouraged to provide abstracts, program information and suggestions so that the 1985 volume will reflect continued improvement of the series' quality and usefulness.

A personal thank you goes to Dave Hanselman, Project Director for the first six volumes of Recent Graduate Works. He has helped to make the transition of RGW from the State University of New York - Syracuse to the University of Northern Iowa a smooth and painless move.

Jody M. Hines
Project Director and Editor

SITE ANALYSIS

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Development of an Environmental Education Site Plan and Sample Programs for Use at Ward Acres Park

AUTHOR David P. Schofield **DATE OF COMPLETION** December 198?

INSTITUTION Slippery Rock State College (Master's Thesis)

DEPARTMENT / PROGRAM Parks and Recreation

THESIS ADVISOR Dr. Craig Chase

WHERE FULL THESIS IS AVAILABLE Slippery Rock State College

The design of teaching locii at Ward Acres Park and specific suggestions for use are derived by the author after contacting various regional programs and facilities near New Rochelle, New York. Natural and man-made features of the park and the New York State curriculum guidelines for environmental education are the basis for site use.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE DEVELOPMENT PLAN FOR THE SEAWELL ELEMENTARY SCHOOL - CHAPEL HILL HIGH SCHOOL ENVIRONMENTAL STUDIES AREA

AUTHOR Daniel R. Plonski **DATE OF COMPLETION** May, 1984

INSTITUTION Duke University, Durham, N.C. 27706 (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Dr. Jack P. Royer

WHERE FULL THESIS IS AVAILABLE SFES Publications Office, 208 Biological Sciences
72 pp., copy fee $5.10

Faculty members of the Seawell Elementary School and the Chapel Hill High School have expressed an interest in developing an environmental studies area on the woodland tract which adjoins the two schools. The physical characteristics of the tract, including its topography, flora, fauna, significant features and environmentally sensitive areas, have been evaluated in terms of their potential contributions or hinderances to the educational use of the area. The area has been found to contain a locally rugged topography and a high degree of ecologic diversity. These features, combined with the area's proximity to the two schools, render it an ideal location for environmental studies.

A three-phase plan has been prepared which provides a simple, low cost and environmentally sound means by which to develop the area for its educational use. The plan includes a detailed work breakdown, recommendations and designs for the installation of appropriate structures, an estimated budget and recommendations for organizing the project. Further recommendations are made for the use and maintenance of the area.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Fox Lake: A Water Quality and Management Study

AUTHOR 21 Water Resources Management graduate students DATE OF COMPLETION August 1983

INSTITUTION University of Wisconsin-Madison (Master's Thesis)

DEPARTMENT / PROGRAM Institute for Environmental Studies, Water Resources Management Program

THESIS ADVISOR Elizabeth E. Salmon

WHERE FULL THESIS IS AVAILABLE Room 72 Science Hall, 550 N. Park St., Madison, WI 53706

Students in the Water Resources Management Program of the Institute for Environmental Studies, University of Wisconsin-Madison, conducted a study of the Fox Lake Watershed. Purposes of the study were to identify factors contributing to the degradation of Fox Lake's water quality, and to recommend management alternatives designed to restore and protect the lake. Analysis of Fox Lake incorporated both technical data and perceptions of area residents. A public opinion survey of property owners was done to identify problems considered important by owners, sources of these problems and possible solutions. Fox Lake is extremely important to the surrounding community, due to both its recreational and aesthetic values and to its economic worth. A conservative estimate puts expenditures by anglers at $2.9 million yearly. About half of all water entering Fox Lake is groundwater, but most of the phosphorus is carried in surface runoff. Other external sources of phosphorus include septic systems, groundwater and atmospheric additions. Fox Lake is fortunate in having extensive wetlands adjacent to its shores. These wetlands act as efficient nutrient and sediment traps. Recommendations emphasize treating lake quality problems at their source. These measures concentrate on human activities in the watershed that add excess sediment and nutrients into Fox Lake. Source control measures include wetland protection and preservation, conservation tillage, stream bank fencing, and lawn maintenance. Source treatment takes time, and many of these recommendations are expensive. Nevertheless, it is felt that source treatment is cost-effective in the long run.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Preliminary List of Plants of Special Concern in Pennsylvania's Glaciated Section of the Appalachian Plateau Province

AUTHOR Paulette Johnson DATE OF COMPLETION December 1982

INSTITUTION Slippery Rock State College (Master's Thesis)

DEPARTMENT / PROGRAM Department of Parks and Recreation

THESIS ADVISOR Dr. C. C. Chase

WHERE FULL THESIS IS AVAILABLE Slippery Rock State College

A study was conducted identifying the location of plants of special concern in Pennsylvania's glaciated section of the Appalachian Plateau Province. An evaluation of the degree of protection was determined by comparing the number of sites occurring on public and private lands. Forty-five of the 372 species listed for Pennsylvania were found in the study area. Of the total sites identified for all species, 66% were found on private lands. Fifty-five percent of the species are located on at least one public or conservation oriented site.

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North American Association for Environmental Education

TITLE The Natural History of Washington Island (Wisconsin): Studies in Wildflower Ecology, Environmental Education and Resource Protection

AUTHOR Susan M. Sander **DATE OF COMPLETION** May, 1984

INSTITUTION Sangamon State University, Springfield, Illinois (Project)

DEPARTMENT / PROGRAM Environmental Studies Program

THESIS ADVISOR Dr. Edward Hawes

WHERE FULL THESIS IS AVAILABLE SSU - Library Archives

This project was the result of 7 years of field observation, photographic work and research. The purpose of the study was to coordinate environmental data for the island's planning committee, and to present such information in a manner that would increase environmental awareness of the island's varied ecosystems and the issues of land-use planning for both visitors (tourists) and residents.

A Wildflower Calendar Guide for Washington Island and Door County, Wisconsin was developed as an introduction into plant ecology. Scripts to 2 slide shows on Door County wildflowers include ecosystem interpretation (plant associations) and plant lore. A separate section on the island's natural history will be expanded for later publication. Interpretive hikes were conducted with island school groups.

Partial funding came from a grant by the National Audubon Society's education division.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE ATURAL RESOURCE MANAGEMENT PLAN AND PROGRAM FOR YMCA CAMP TOCKWOGH, WORTON, MD

AUTHOR Cynthia Ann Homsher **DATE OF COMPLETION** May, 1983

INSTITUTION Duke University, Durham, N.C. 27706 (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Dr. Jack P. Royer

WHERE FULL THESIS IS AVAILABLE SFES Publications Office, 208 Biological Sciences

184 pp.; copy fee $10.70

A natural resource management plan and accompanying implementation program was developed for YMCA Camp Tockwogh, Worton, Maryland. The plan combines existing and proposed recreational and natural resource uses and provides the camp administration with a basis for managing its diverse natural resources while still optimizing the recreational potential of the site. A site inventory and analysis was conducted to provide the necessary data for present and proposed uses and management. Previous land use and management of the site were reviewed and contacts were made with appropriate cooperative local and state government agencies. Existing problem areas of trail and bluff erosion, lake entrophication, and timber management are specifically addressed in the plan. Detailed corrective measures are also described for these cases. The recommended management strategies will allow Camp Tockwogh to select uses of its resources which will protect the area's resource potential.

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Environmental Education / Communication
Project or Thesis Report Form

National Association for Environmental Education

TITLE: The Water Quality of Tobyhanna Creek (PA) With Considerations For Recreation

AUTHOR: Karol A. DiPasquale DATE OF COMPLETION: June 1983

INSTITUTION: Slippery Rock University of Pennsylvania (Master's Thesis)

DEPARTMENT / PROGRAM: Parks and Recreation/Environmental Education

THESIS ADVISOR: Craig C. Chase, Doris V. Parkman, S. Elaine Rogers (E.Stroudsburg U. of PA)

WHERE FULL THESIS IS AVAILABLE: Slippery Rock University of Pennsylvania, E. Stroudsburg U. of PA, Pocono Mt. High School library.

During the years 1976-1981, the Pocono Mountain School District was engaged in water quality research. Tobyhanna Creek, Monroe County, was chosen as the study site for the Ecology classes of Mr. Clarence W. Dennis. Each year, chemical, physical, and biological tests were done in an attempt to determine general quality of the creek. This is significant as two sewage treatment plants empty effluent into major tributaries of the creek. Tests completed include: dissolved O_2, pH, alkalinity, hardness, nitrates, phosphates, fecal coliform, aquatic insect sampling and identification and measurement of air and water temperature, depth, width, velocity of flow and volume of flow. Each test was performed at six test sites along a 1-1/8 mile stretch of Tobyhanna Creek near Tobyhann, Pennsylvania.

This thesis compiles all the existing data accumulated by the students, points out deviations from standards established by the Commonwealth of Pennsylvania for water quality, and attempts to determine the conditions responsible for variations from the "norm". The paper also considers the impact of water quality on the highly-used recreation area.

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Wholesale Nursery Design for the Austin State School, Austin, Texas

AUTHOR Kaye Vivienne Jenkins DATE OF COMPLETION Dec. 1983

INSTITUTION Stephen F. Austin (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry

THESIS ADVISOR Dr. Michael H. Legg

WHERE FULL THESIS IS AVAILABLE School of Forestry-Stephen F. Austin State University, Nacogdoches, Texas

A market survey of retail and wholesale woody ornamental nurseries in the Austin vicinity was undertaken through a simple survey. Responses to questions pertaining to best-selling plants and desired plants, along with responses from the Texas State Department of Highways and Public Transportation pertaining to most used plants and desired plants were used to determine recommended plants for propagation by the proposed nursery at the Austin State School Annex, Austin, Texas.

A list of 30 native plants recommended for propagation by the Austin State School was compiled. Due to the lack of information on the propagation and culture of native plants in general and Texas plants in particular, it was recommended that the proposed nursery be set up for experimentation with propagation and production of native plants for the first year. The proposed nursery was designed and specifications for its installation were detailed.

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PARKS & CAMPS:
USERS & INTERPRETERS

Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE ENVIRONMENTAL INTERPRETIVE CENTERS OF THE UNITED STATES: AN ETHNOGRAPHIC STUDY

AUTHOR ERVAND WILDEN PETERSON **DATE OF COMPLETION** APRIL 1984

INSTITUTION UNIVERSITY OF MICHIGAN ANN ARBOR (Doctoral Dissertation)

DEPARTMENT / PROGRAM SCHOOL OF NATURAL RESOURCES --- BEHAVIOR AND ENVIRONMENT PROGRAM

THESIS ADVISOR DR. WILLIAM B. STAPP AND DR. PAUL F. NOWAK

WHERE FULL THESIS IS AVAILABLE ~~UNIVERSITY MICRO FILMS ANN ARBOR, MICHIGAN~~

In this study eleven environmental interpretive centers in the United States were visited and described. The experiences of center participants are examined in detail in order to identify areas of common problems and solutions considered and utilized.

In this study I utilized an interpretive ethnographic research approach. This allowed me to examine each center, interview staff, observe staff interactions, and to participate in programs. Interviews and conversations were tape recorded, while observations and experiences were recorded in a written journal. Tapes were transcribed and analyzed along with journal entries to identify common areas, themes, and concerns which were germaine to each center.

Each center is described as to the physical setting, philosophy, goals, objectives, staffing, funding, and history. These descriptions attempt to present an accurate portrait of center life. Three common core elements emerge in the descriptions and are given special attention: 1. funding and management, 2. personnel, and 3. philosophy. These are followed by guidelines which are designed to overcome problems faced by centers.

Three important guidelines are: 1. centers must be operated as businesses with a professional manager and have sound fiscal management systems, 2. personnel must be compensated as career employees for extra hours of work. Volunteers should be used productively and coordinated by a staff person, 3. Centers should examine their role in the community and integrate problem solving into their educational programs.

These guidelines are intended to aid centers in evaluating their present state of operations, to communicate what other centers have done in similar situations, and to offer practical suggestions for those who might be establishing a center.

Further research should focus on centers in other geographic regions of the country as well as environmental issues and community involvement. The interpretive ethnographic research approach is well suited to this type of study and should be seriously considered as an appropriate methodology for further research.

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North American Association for Environmental Education

TITLE An Assessment of Visitor Interests and Evaluation of Conducted Interpretive Programs of Everglades National Park

AUTHOR MOTTS, Paul H. **DATE OF COMPLETION** 1983

INSTITUTION The Pennsylvania State University (Master's Thesis)

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR J. Elliott

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, PatteeLibrary, The Pennsylvania State University, University Park, 16802

An assessment was made of visitor interests and their evaluation of conducted interpretive programs at Everglades National Park. In addition, comparisons were made of staff assumptions of visitor interests and evaluations with the actual responses of park visitors. Visitors and park interpreters were surveyed with written questionnaire instruments from April 3-12, 1982. Visitor study populations over 15 years of age were surveyed at Long Pine Key and Flamingo Campgrounds. Randomization was done according to specific departure day of the visitors. Interpretive personnel and volunteers were surveyed as a population. Program attendance and combined evaluation rating of total programs attended were dependent variables used in the analyses. The pooled t-test analyzed the difference between the $\bar{X}$ evaluation ratings of both study populations. Both parametric statistics were tested at the .05 significance level. Histograms compared percentage variations made between both study populations. Visitor attendance in regard to visitor marital status and age was significant. Visitor attendance in regard to the other socio-demographic variables studied was not found significant. X^2 of visitor evaluation rating and each of the socio-demographic variables were not found significant. Personnel/volunteer respondents closely approximated visitor respondents for most response categories.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Interpretive Booklets and Activities for the YMCA Outdoor Center

AUTHOR Janice C. Heling **DATE OF COMPLETION** November 21, 1983

INSTITUTION Iowa State University, Ames, IA 50011 (Project)

DEPARTMENT / PROGRAM General Graduate Studies Program

THESIS ADVISOR Dr. Thomas Tanner, 141 Bessey Hall

WHERE FULL THESIS IS AVAILABLE Environmental Studies Program, 141 Bessey Hall
$4 for printing and mailing

(Citation number if applicable)

Interpretive trail guides and activities directed to two age groups of children (5-7 year olds and 8-11 year olds) were developed for the YMCA Outdoor Center at Ames, Iowa. This creative component was prepared by first understanding and second incorporating the three disciplines: child development, botany, and education. It was thought that by pulling information from these three areas a person would prepare a base for developing an environmental education program/philosophy. Therefore, the author starts out by considering child development theories and facts, exploring the botanical significance of the geographical area, and accumulating data on various education techniques. The trail guide attempts to bring adult and child together to experience the life of plants in the forest. The activities focus on the concepts of energy, water cycle, and soil components.

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North American Association for Environmental Education

TITLE Environmental Education at Camp Durant: A Pilot Project

AUTHOR Beth E. Wilson, Assistant Professor DATE OF COMPLETION May 1984

INSTITUTION N.C. State University (Project)

DEPARTMENT/PROGRAM Recreation Resources Administration Department

THESIS ADVISOR

WHERE FULL THESIS IS AVAILABLE

A pilot project was developed and implemented in the spring of 1984 through a cooperative effort by N.C. State University, Wake County Public School System, and Raleigh Parks and Recreation Department. Eight 5th grade classes were selected from 50 elementary schools to participate in a 2½ day residential environmental education camp. University students developed activities in the following areas: observation; sensory awareness; data collection; and outdoor skills. Fifth graders and their teachers and parents participated in such activities as map and compass skills, blind walks, minimum impact camping, scavenger hunts, un-nature trails, and soils. Evening programs involved night tracking and astronomy.

This pilot project will serve as a basis for a future effort to serve all fifth grade students in the Wake County system, as well as train teachers to teach in the outdoors year round. Pre-visit activities and activity lesson plans were developed and are now available for other school groups.

Future efforts will continue to involve all three agencies and in particular the RRA 443 - Applied Recreation and Park Interpretive Services Class as student instructors.

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PUPIL-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE: Environmental Perceptions and Behaviors of University Students Enrolled In a Freshman Level Environmental Problems Course

AUTHOR: Dan J. Sivek **DATE OF COMPLETION:** August, 1982

INSTITUTION: Southern Illinois University - Carbondale (Master's Thesis)

DEPARTMENT / PROGRAM: Curriculum, Instruction, and Media

THESIS ADVISOR: Dr. Harold R. Hungerford

WHERE FULL THESIS IS AVAILABLE: Education Library, Morris Library, SIU-C

The purpose of this study was to assess the environmental perceptions of a sample (n=60) of university students enrolled in a freshman level environmental problems course (EPC). Specifically, the research assessed EPC students' perceptions of: (1) the environmental issues of greatest importance; (2) the environmental issues of greatest interest; and (3) the differences between environmental issues of greatest interest and a control issue in terms of levels of knowledge, importance, individual locus of control, group locus of control and environmental action. A comparison was also made between EPC students' perceptions and those held by a sample (n=73) of university environmental education (EE) students regarding issues of greatest importance and within group homogeneity of responses regarding these issues.

EPC students perceived nuclear waste disposal (22%), energy consumption (16%), and overpopulation (12%) as the three most important environmental issues, while EE students perceived overpopulation (49%), energy consumption (33%), water pollution (4%), and land use management (4%) as most important. EPC students chose 15 issues as most important, while EE students chose only 8 issues. EPC students selected a total of 23 issues of greatest interest, the top three being: nuclear waste disposal (21%), air pollution (13%), and wilderness preservation (10%). Statistically significant differences ($p < .01$) were found between issues of greatest interest and the control issue in terms of perceived level of knowledge, perceived level of importance to mankind, and self-reported environmental action. No statistically significant differences were found regarding individual or group locus of control.

It was concluded that: (1) EPC students perceived nuclear waste disposal as the most important issue facing mankind, (2) EPC students perceived different issues than those chosen by EE students as most important to mankind, (3) perceptions of EPC students regarding issues of greatest importance were quite heterogeneous compared to perceptions of EE students, (4) perceptions of EPC students regarding issues of greatest interest were relatively heterogeneous, (5) EPC students perceived that they held more information about their issues of greatest interest than about the control issue, (6) EPC students perceived issues of most interest to them as more important than the control issue, (7) EPC students' individual locus of control did not differ between issues of greatest interest and the control issue, and (8) EPC students' group locus of control did not differ between issues of greatest interest and the control issue.

It was recommended that environmental education programs be implemented which raise students' levels of: issue information, individual and group locus of control, and citizenship action. It was also recommended that environmental educators stress issues which are perceived as most important by environmental scientists, and that pre-university environmental education programs be strengthened.

Research recommendations are also given.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE *THE UNITY OF LEARNING: A SYSTEMS PERSPECTIVE ON ENVIRONMENTAL EDUCATION*

AUTHOR *Pamela J. Puntenney* DATE OF COMPLETION *August, 1983*

INSTITUTION *The University of Michigan* *(Doctoral Dissertation)*

DEPARTMENT / PROGRAM *Natural Resources/Education*

THESIS ADVISOR *Co-chairmen: William B. Stapp, William Cave*

WHERE FULL THESIS IS AVAILABLE *The University of Michigan Graduate Library: University Micro-films*

This study investigated a system of education that recognized the influence of the environment and considered that relationship an integral part of its core curriculum. Oxfordshire, England primary schools provided a setting where the activities of the people participating in the educational process were observed and described during the 1980-1981 school year. Building on past experiences with theory and practice, interdisciplinary approaches were used to go beyond the open system paradigm to examine the components of the learning system, including the experiences of its participants and their relationships. The human sciences provided modes of inquiry which were largely selected from ethnography, participant observation, documentary, case study methods, phenomenology and grounded theory.

Environmental education is not an event in Oxfordshire but a process based upon the child's natural awareness of his/her world. Consequently, a set of beliefs has emerged there that has shaped the extent and form of the relationships between the teacher and learner, creating an underlying structure of the learning process reflected throughout the system. The insights gained from this investigation suggest that among the broader considerations from the World Conservation Strategy and The First Intergovernmental Conference on Environmental Education notions about educators and the learning process should be re-examined. Institutional arrangements and future research in environmental education should take into consideration an emphasis on learning rather than teaching - that is, the development of a dynamic policy structure that emanates from the learner's personal experience and knowledge. In Oxfordshire these interactive elements provided the planning and management framework for a learning process based upon personal experience, creative modes of expressing ideas, secondary sources of knowledge, communication, and an on-going evaluation. Major components of this responsive learning system were derived from its support structure, the culture of the system, its needs and boundaries, the interactions of its participants, the relationships between teacher and taught, and the pervasive ethos: represented in the life of the school; the sense of community; the child's world; and the utilization of the environment. All of these factors were bound by a strategy based upon the lateral transmission and sharing of knowledge.

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North American Association for Environmental Education

TITLE Integrating Children with Disabilities through Cooperative, Experiential Programs and Adaptable Environments

AUTHOR Gina M. Moreland **DATE OF COMPLETION** May 1984

INSTITUTION California State University, Hayward (Master's Thesis)

DEPARTMENT / PROGRAM Education, Curriculum Option in Environmental Education

THESIS ADVISOR Dr. Esther Railton

WHERE FULL THESIS IS AVAILABLE Library, California State University, Hayward

The integration of children with and without disabilities has been mandated by federal legislation and the California education code; however, the most appropriate methods have yet to be determined. Some research has indicated that cooperative goal-structuring, experiential activities, mixed-age grouping and challenging and adaptable environments can promote social interaction between children with and without disabilities. The hypothesis of this study was that Project PLAE (Play and Learning in Adaptable Environments), a summer program of arts and environment workshops for children of all abilities, would successfully integrate children with and without disabilities by promoting positive social interactions through cooperatively-structured, experiential activities conducted among children of different ages in an adaptable environment.

Seven supporting subhypotheses were tested directly using data collected from interviews with children and their parents, direct observations of social interactions, and photographs. Data generated by this investigation supported the hypothesis. Parents overwhelmingly believed that Project PLAE was effective in integrating children with and without disabilities. The majority of children enjoyed Project PLAE workshops and their parents confirmed their favorable reactions. Approximately forty percent of the children interviewed reported being involved in heterogenous (disabled/non-disabled) play relationships or friendships at Project PLAE. Direct observations and photographs showed that integrative social interactions occurred in the contexts of cooperatively-structured activities, experiential activities, between children of different ages and in an adaptable environment. The results of this study led to the conclusion that the integration of children with and without disabilities can be facilitated by careful programming and adaptable environments.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Presentation and Evaluation of a Community Transportation Curriculum Module: International Environmental Education

AUTHOR Paul Taylor Zeph **DATE OF COMPLETION** February 1983

INSTITUTION The University of Michigan, School of Natural Resources (Master's Thesis)

DEPARTMENT / PROGRAM Department of Behavior and Environment

THESIS ADVISOR Dr. William B. Stapp

WHERE FULL THESIS IS AVAILABLE The University of Michigan Graduate Library

The Community Transportation Module is an innovative curriculum module developed for middle school students. It was designed to assist the learner in becoming more aware and sensitive to community transportation patterns and its associated problems. The module was also designed to

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assist learners in acquiring the knowledge, concern, motivation, tendancy to act, values, and skills to work individually and collectively toward a solution to a particular transportation problem selected by the learner in his/her own community.

More specifically, this module is directed at providing middle school youth with a better understanding of the "globalness" of the automobile industry in several ways: 1) the impact of local transportation decisions on the global environment; 2) the broader concept of transportation patterns used in other parts of the world; 3) innovative ways that other countries cope with transportation problems; and 4) an opportunity for the learner to apply this newly acquired information and perspective toward the solution of some local transportation problem of their concern.

The evaluation of this Community Transportation Module was conducted in a Detroit suburb school system, using three experimental classes and one control class (100 students total). Based upon overall program objectives and specific objectives for each activity in the module, a research design was developed to determine if there were any shifts in learner attitudes, values, or skills related to community transportation.

The evaluation data indicates that this transportation curriculum for middle school-aged youth was effective in assisting the learner in developing particular attitudes, values, and problem-solving skills important to the development of a more aware, knowledgeable, and skilled individual. Furthermore, the material was effective in extending the learners' understanding of the global environment and awareness that local decisions and lifestyles frequently have international implications.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Survey of Facets of Ecology Teaching in Illinois General Biology Classrooms

AUTHOR Brenda L. Barber DATE OF COMPLETION Summer 1982

INSTITUTION Southern Illinois University, Carbondale, Illinois (Master's Thesis)

DEPARTMENT / PROGRAM Curriculum, Instruction, and Media/Environmental Education

THESIS ADVISOR Dr. Audrey N. Tomera

WHERE FULL THESIS IS AVAILABLE Southern Illinois University

The purpose of this study was to acquire a comprehensive profile of the teaching of ecology in the general biology classrooms in Illinois secondary schools. A questionnaire was mailed to a random sample of Illinois teachers in order to collect data on various facets of ecology teaching in their biology classrooms with respect to: (1) textbook used, (2) textbook sequencing of ecology, (3) teacher evaluation of the textbook presentation of ecology, (4) textbook usage, (5) teacher perception of the importance of ecology in the biology curriculum, (6) constraints to the teaching of ecology, (7) teacher experience and ecology training, (8) content and subject matter, (9) usage of instructional resource materials, (10) usage of instructional methods, and (11) application toward environmental problems. These data were analyzed and are summarized providing an assessment of the current status of ecology teaching in the general biology classrooms in the secondary schools of Illinois. Further, discussion and recommendation are made based upon this study.

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TEACHER-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A National Survey of Curriculum Needs as Perceived by Professional Environmental Educators

AUTHOR Gertrude L. Volk **DATE OF COMPLETION** 1983

INSTITUTION Southern Illinois University at Carbondale (Doctoral Dissertation)

DEPARTMENT / PROGRAM Department of Curriculum, Instruction and Media

THESIS ADVISOR Dr. Harold Hungerford and Audrey Tomera

WHERE FULL THESIS IS AVAILABLE University Microfilms International, Dissertation Copies, P.O. Box 1764, Ann Arbor, MI 48106 Order No. DA8321474
Also available from Morris Library, SIU, Carbondale, IL 62901

The purpose of this study was to assess perceived environmental education curriculum needs in the United States. The Environmental Education Curriculum Needs Assessment Questionnaire (EECNAQ) was developed, validated, and direct-mailed to 169 randomly selected environmental educators who were members of two professional environmental education organizations. Ninety-nine individuals responded to the survey (return rate = 58.6%).

The EECNAQ elicited perceptions about the desired status of environmental education curricula, the current status of environmental education curricula, the need for curriculum development, the anticipated use of curricula by teachers, and the need for inservice teacher education related to goal-oriented curricula. These five major questions were posed relative to fifteen goals which reflected the Tbilisi objectives and which addressed environmental knowledge, issue awareness, issue investigation/evaluation skills, and citizenship action. Respondents were asked to consider the five major questions at each of four academic levels (elementary, middle school, secondary, college).

The following inferences were drawn from the findings:

1. Professional environmental educators believe there exists a considerable discrepancy between the desired status and the existing status of environmental education. This discrepancy becomes more pronounced as an individual moves upward through his/her educational experiences.

2. Individuals in the sample perceived that environmental education goals are not being met with existing curricula.

3. The need for environmental education curricula and for inservice teacher education are perceived as considerable at all academic levels and substantial for all of the environmental education goals. Goal-related teacher education appears to be the major need at all academic levels with the exception of the college level, where inservice needs are exceeded slightly by the need for goal-oriented curricula.

4. Professional environmental educators believe that goal-oriented curricula would be used by classroom teachers, although the extent of its use relative to discrete goals would be varied.

5. Formal and non-formal environmental educators are in general agreement regarding the above perceptions.

Recommendations included immediate and extensive inservice teacher education efforts and the development of curricula addressing the set of goals utilized in the study. Further recommendations for future research were also tendered.

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Environmental Education / Communication Project or Thesis Report Form

National Association for Environmental Education

TITLE: Environmental Perceptions and Behaviors of Illinois Soil and Water Conservation District Directors

AUTHOR: Michael T. Harrington **DATE OF COMPLETION:** November 1982

INSTITUTION: Southern Illinois University at Carbondale (Master's Thesis)

DEPARTMENT / PROGRAM: Department of Curriculum, Instruction, and Media

THESIS ADVISOR: Dr. Harold R. Hungerford

WHERE FULL THESIS IS AVAILABLE: Education Library, Morris Library--SIU-C

The purpose of this study was to assess a sample (n=67) of Illinois Soil and Water Conservation District (SWCD) directors' perceptions concerning variables generally agreed to be related to environmental perspectives and/or behavior, i.e., perceived levels of: (1) importance to mankind, (2) knowledge, (3) individual locus of control, (4) group locus of control, (5) policy making, and (6) self-reported environmental behavior, all with respect to the environmental issues of most interest to the directors and a control issue.

Further assessments were made of the degree of homogeneity of SWCD directors' perceptions regarding issues of most interest and issues of greatest importance to mankind. All assessments were compared to parallel assessments undertaken in earlier studies using samples of college students (n=68) enrolled in a freshman level environmental problems course (EPC) and Environmental Education (EE) Trainees, (n=73), and in a study in progress of wildlife biologists.

SWCD directors perceived that the most important environmental issue facing mankind was either production of food (36%), soil conservation (31%), or land use management (22%), accounting for 89% of the directors' selections. Ninety-four percent of the directors also selected one of these three issues as being the one of greatest personal interest. SWCD directors held significantly higher levels of perceived knowledge, individual and group locus of control, policy making, and self-reported environmental behavior, on director-selected issues than on the control issue, p .01 in all cases.

Results of the study suggest that members of groups may perceive issues of greatest interest to them as having more importance to mankind than issues of lesser interest. Because perceptions of the most important environmental issues held by SWCD directors and EPC students were vastly different from perceptions held by EE trainees and wildlife biologists, the author hypothesized that: (1) nonenvironmentally-allied academically-oriented groups' perceptions are heterogeneous, (2) environmentally-allied academically-oriented groups' perceptions are homogeneous and similar between groups, and (3) environmentally-allied nonacademically-oriented groups' perceptions are homogeneous (as with the SWCD directors) and not similar to academic groups.

It was also suggested that educational programs addressing nonagricultural conservation issues might increase SWCD directors' perceived levels of information, individual and group locus of control, policy making, and environmental action regarding those issues.

Four recommendations for further research are listed.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Development of a Museum Education Curriculum for Teachers

AUTHOR HASTINGS, Heather DATE OF COMPLETION 1983

INSTITUTION The Pennsylvania State University (Project)

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR J. Elliott

WHERE FULL THESIS IS AVAILABLE Lawther Reading Room, College of Health, Physical Education, and Recreation, White Building, University Park, PA, 16802

Interdisciplinary museum education curriculum materials were developed to be used by 4th- through 6th-grade students and their teachers in the Spokane, WA, area. The historical, cultural, and scientific aspects of mining in the region, as well as environmental effects, were emphasized. Resources of the local museum, the Eastern Washington State Historical Society, were utilized. The curriculum was based on a previous museum education program sponsored there by the National Endowment for the Humanities. Curriculum materials were designed to be used independently by teachers without museum staff supervision, and included pre-museum visit activities, museum visit activities, post-visit project ideas, a field trip guide, a resource list for teachers, and a student guide.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Sangamon River Valley: A Sense of Place

AUTHOR Virginia R. F. Wood DATE OF COMPLETION May 1984

INSTITUTION Sangamon State University, Springfield, Illinois (Project)

DEPARTMENT / PROGRAM Environmental Studies

THESIS ADVISOR Dr. Edward L. Hawes

WHERE FULL THESIS IS AVAILABLE Brookens Library, Sangamon State University

The premise of this project is that elementary and secondary teachers who have a knowledge and appreciation of the place in which they live will convey this knowledge and appreciation to their students. This paper is a series of small projects designed to give teachers of this area, the Sangamon River Valley, a multidisciplinary understanding of the natural and cultural heritage of the region with an emphasis on the prairie. The first four units are (1) the geology of the region and its relationship to the formation of prairie, (2) theories about the origin of the prairie, (3) vegetation observed by the author in three prairies, (4) and a unit on the values early Euro-Americans brought to their interaction with the landscape as well as their evaluation and use of prairie resources. Two final sections provide a format for a field trip to a prairie and a field trip to the cabin site of the first Euro-American settler of the county. The format stresses artistic response to the landscape as well as factual understanding about the natural and cultural history of the region.

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Environmental Education / Communication
Project or Thesis Report Form

North American Association for Environmental Education

TITLE Worksheet Use in Elementary Science and Environmental Education

AUTHOR Rebecca Lash DATE OF COMPLETION August, 1984

INSTITUTION Cornell University (Master's Thesis)

DEPARTMENT / PROGRAM Science and Environmental Education

THESIS ADVISOR Dr. Richard B. Fischer

WHERE FULL THESIS IS AVAILABLE Mann Library, Cornell University

This study looked at worksheets as educational tools in elementary science and environmental education. An investigation was undertaken to determine the formats of worksheets, the ways teachers use worksheets, and the extent to which worksheets are effective in elementary education, and in science education in particular.

A questionnaire was distributed to all the teachers of Central Elementary School in Ithaca, New York. It was learned that all teachers use worksheets in math and language arts nearly every day, but that science worksheets are rarely used. Science is taught much less frequently, and few commercially produced science worksheets are available.

In order to determine and test the elements of successful worksheet design, a science unit was developed along with ten worksheets to accompany it. The unit was taught at Central Elementary School, and the worksheets used with children in grades one, two, three and four. The purpose of the study was also to determine how worksheets can successfully be designed into a science curriculum.

From this study, criteria for successful worksheet design and use were determined. The format of the worksheet is nearly as important as the context in which it is used. A worksheet must be appropriate both for the learner and the situation.

It was seen that there is a need for good science worksheets in general science education, and that they can be effective in environmental education as well. Teachers would teach more science if good science worksheets were more available.

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CITIZEN-CENTERED STUDIES

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE An Analysis and Synthesis of Research on Responsible Environmental Behavior

AUTHOR Jody M. Hines **DATE OF COMPLETION** July, 1984

INSTITUTION Southern Illinois University at Carbondale (Doctoral Dissertation)

DEPARTMENT / PROGRAM Department of Curriculum, Instruction, and Media

THESIS ADVISOR Dr. H. Hungerford and Dr. A. Tomera

WHERE FULL THESIS IS AVAILABLE Morris Library - Southern Illinois University at Carbondale

The purpose of this research was to conduct an analysis and synthesis of research findings reported in the field, primarily through the use of meta-analysis techniques in an effort (1) to determine those variables which have been identified in the research as being associated with responsible environmental behavior, (2) to determine the relative strengths of the relationships between each of these variables and responsible environmental behavior, and (3) to develop a model of variables associated with environmental behavior which is most representative of the research synthesized in this investigation.

A comprehensive search of the literature was conducted in an effort to locate empirically based environmental behavior research which had been conducted over the past decade. Meta-analysis techniques were applied in an effort to determine the relative strengths of the relationship between the variables researched and responsible environmental behavior.

The following conclusions were drawn from these findings:

1. A wide variety of variables have been investigated in association with responsible environmental behavior.
2. Those variables found to be most strongly associated with responsible environmental behavior were verbal commitment ($\bar{r}$ = .491), locus of control ($\bar{r}$ = .379), attitudes ($\bar{r}$ = .347), personal responsibility ($\bar{r}$ = .328), and knowledge ($\bar{r}$ = .299).
3. Several behavioral intervention strategies were found to be effective in increasing the incidence of responsible environmental behavior. These were the offering of incentives ($\bar{r}$ = .690), written or verbal appeals ($\bar{r}$ = .707), information ($\bar{r}$ = .472), and feedback ($\bar{r}$ = .267).
4. The mode of behavior assessment was found to have a moderating effect on study outcomes. In most cases, higher correlations between the variables assessed and environmental behavior were obtained from studies in which measures of actual behavior were employed as opposed to those studies which relied upon self-reported behavior assessments.
5. Study outcomes were moderated by the population sampled. In all cases, higher correlations between the variables assessed and responsible environmental behavior were detected in those studies whose samples were comprised of individuals with ties to an environmental organization.
6. Experimental design was found to have a moderating effect on study outcomes. In most cases those studies which employed pre-experimental designs reported substantially larger changes in behavior than were observed in quasi-experimental and true experimental design studies.

An environmental behavior model was formulated to represent the research synthesized in this investigation. The essentail components of that model reflected the findings of the meta-analysis. Educational implications and recommendations of the model were discussed. Recommendations for future research were also tendered.

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Environmental Education / Communication
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North American Association for Environmental Education

TITLE AN INVESTIGATION INTO ENVIRONMENTAL ACTIVISM

AUTHOR Mark A. Larson DATE OF COMPLETION 1980

INSTITUTION University of Wisconsin-Madison (Doctoral Dissertation)

DEPARTMENT / PROGRAM Mass Communications

THESIS ADVISOR Prof. Lloyd Bostian

WHERE FULL THESIS IS AVAILABLE Univ. of Wisconsin-Madison

A systematic review of the empirical generalizations in the environmental literature revealed a wide range of findings in terms of relationships between environmental concern and activism and communication, social, demographic and psychological variables. Since little attention had been given to the methodology of replication to verify these empirical generalizations, the goal of this research was to test the soundness of the empirical generalizations in the environmental literature by attempting to replicate previously identified relationships between environmental activism and communication, social, demographic and psychological variables.

The research design compared environmentally active respondents to non-active respondents (identified by responses to five behaviorally oriented environmental activism questionnaire items) in a random sample of 548 Wisconsin adults. In addition, a select sample of 164 environmental activists from Madison, Wisconsin was surveyed to permit comparisons between environmental activists in the statewide sample and environmental activists in the select sample, and to permit replication of studies in the environmental literature which used select samples of environmental activists.

Specific findings of the data analysis are as follows:

A positive relationship was found in the statewide sample between environmental activism and reading magazines regularly, wanting to find out more about environmental issues, and reading news magazines and science/technical reports. The select sample of environmental activists also showed high readership of news magazines and science/technical reports, as well as environmental magazines. This evidence tends to replicate previous findings.

Environmental activists in the statewide sample were similar to the non-active respondents in habitual mass-media use and in citing newspapers and television as their most important and influential sources of information on environmental issues. The select sample of environmental activists were quite different in their choices, citing newspapers and magazines as their most important and influential sources of environmental information; few mentioned television or radio. This latter finding replicates findings from other studies using select samples of environmental activists.

A positive relationship was found between environmental activism and social class and "white-collar" occupation in both samples of environmental activists, which replicates previous findings. Environmental activists in the statewide sample also tended to have lived in large urban areas before the age of 18. No relationship was found between environmental activism and sex of respondent of religious preference.

This research failed to replicate the generalization that environmental activism is related to political party preference or left right ideology in the statewide sample, though the select sample of environmental activists was strongly Democratic or Independent and liberal. A positive relationship was found between environmental activism and belonging to community-action and political organizations in both samples.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE An Investigation of Selected Predictors of Overt Responsible Environmental Behavior

AUTHOR Archibald Peterson Sia DATE OF COMPLETION June 21, 1994

INSTITUTION Southern Illinois University - Carbondale (Doctoral Dissertation)

DEPARTMENT / PROGRAM Dept. of Curr., Instr. & Media; Science/Environ. Ed.

THESIS ADVISOR Dr. Harold R. Hungerford & Dr. Audrey N. Tomera

WHERE FULL THESIS IS AVAILABLE So. Ill. University - Carbondale

The purpose of this research was to determine the relative contribution of eight variables in predicting overt environmental behavior. These predictor variables were. (1) level of environmental sensitivity /LES/, (2) perceived knowledge of /KNOW/ and skill in using /SKILL/ environmental action strategies, (4-5) perceived individual /ILOC/ and group /GLOC/ locus of control, (6) psychological sex role classification /SEX ROLE/, (7 and 8) belief in/ attitude toward pollution /POLL/ and technology /TECH/. A multi-sectioned instrument to measure these variables was developed and validated. Two comparison groups were utlized: Sierra Club (SC) and Elderhostel (EH) members. A total of 171 usable instruments was collected.

Scores on the Behavior Inventory of Environmental Action (BIEA) served as the crtierion variable. Multilinear regression analyses were used to answer three major questions: (1) What is the relative contribution of each of the eight variables in predicting overt responsible environmental behavior?, (2) Do these predictor variables operated similarly for both low and hig behavior groups?, and (3) What is the most parsimonious set of variables that predicts overt responsible environmental behavior?

The following conclusions were drawn:

(1) All variables, except TECH, were significant individual predictors of evert responsible environmental behavior;

(2) For the high active group, the significant individual predictors were KNOW, LES, and SKILL;

(3) For the low active group, the significant individual predictors were KNOW, SEX ROLE, and SKILL;

(4) Stepwise regression showed that the best predictors for all respondents accounting for 49.24% of the variance were SKILL accounting for 34.54% of the variance, followed by LES accounting for 12,92% of the variance, and KNOW accounting for 1.78% of the variance;

(5) The best predoctors for the SC sample accounting for 40% of the variance were SKILL (30.15%) and LES (9.85%), and

(6) The best predictors for the EH sample accounting for 64.5% of the variance were LES (45.24%), SKILL (13.41%), and GLOC (5.91%). The eight-predictor variable model used for the EH sample accounted for 71% of the variance in predicting pro-environmental behavior.

The results seem to indicate that the three major predictors of responsible environmental behavior (perceived skill and knowledge of environmental action strategies, and level of environmental sensitivity) need to be addressed in both curriculum devlopment and instructional practive. Recommendations for futre research were presented.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE REDUCING PUBLIC OPPOSITION TO HAZARDOUS WASTE FACILITY SITING

AUTHOR Cecil C. Cross III **DATE OF COMPLETION** May, 1983

INSTITUTION Duke University, Durham, N.C. 27706 (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Dr. Jack Royer

WHERE FULL THESIS IS AVAILABLE SFES Publications Office, 208 Biological Sciences
51 pp.; copy fee $4.05

Public opposition to the siting of hazardous waste treatment, storage, and disposal facilities has become an issue of great public concern in the last decade. While there is a demonstrated need for such facilities, public opposition has made the siting of these facilities difficult if not impossible. This paper examines the causes of this opposition and what steps the government, particularly at the state level, and private waste management firms can take to reduce this opposition and facilitate the siting process.

The paper finds that public opposition to the siting of hazardous waste facilities centers mainly on a lack of public participation in the siting process as well as a general mistrust of government and industry in solving present environmental problems. To deal effectively with these problems the government and firm must encourage public participation in the siting process and provide incentives and compensation to local communities to offset the possible risks they are subjected to by hosting a hazardous waste facility. In this fashion the public concerns contributing to opposition can be directly addressed and the credibility of the government and private waste management firms can be improved.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Some Relationships Among Knowledge, Locus of Control, Perceived Importance, and Perceived Personal Responsibility Regarding Environmental Problems

AUTHOR HAMILTON, James Powhatan **DATE OF COMPLETION** 1983

INSTITUTION The Pennsylvania State University (Doctoral Dissertation)

DEPARTMENT / PROGRAM Recreation and Parks

THESIS ADVISOR P. Farrell

WHERE FULL THESIS IS AVAILABLE Interlibrary Loan, Pattee Library, The Pennsylvania State University, University Park, PA, 16802

The purpose of the study was to determine if relationships existed between knowledge of the environment, perceived importance of environmental concerns, personal responsibility for personally contributing to the problems, and locus of control regarding problems. Four instruments designed to assess these relationships were administered to 241 subjects drawn from college students, high school students, and professionals working in environmental education. Pearson correlations and multiple regression analyses were used to analyze the data. The analyses showed that there were positive relationships between knowledge and locus of control, importance and locus of control, knowledge and importance and personal responsibility and knowledge ($p<.01$). No interactions were significant and personal responsibility was not related to locus of control or importance. There is a given subject area and the degree to which they feel that they have the ability to control or effect change in that area. Persons viewing something as important will have greater knowledge of that subject than persons viewing it as less important. Persons who feel that something is important have a more internal locus of control regarding that subject than persons who feel that the subject is less important.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Wildlife problems, human attitudes and response to wildlife in the Syracuse, New York metropolitan area

AUTHOR Michael A. O'Donnell **DATE OF COMPLETION** April 30, 1984

INSTITUTION SUNY College of Environmental Science and Forestry (Master's Thesis)

DEPARTMENT / PROGRAM Environmental and Forest Biology

THESIS ADVISOR Larry W. VanDruff

WHERE FULL THESIS IS AVAILABLE F. Franklin Moon Library, SUNY CESF

A telephone survey of Syracuse, New York metropolitan area households was conducted over a period of four months. Thirty percent of the respondents had experienced a problem with wildlife during the past two years. These 506 respondents who had experienced a problem with wildlife were asked about the types of problems they had, what they did to solve their problem, and their attitudes toward certain local wildlife species.

The most commonly-reported problem was a general nuisance problem (30% of all problems), followed by yard damage (18% of problems). The gray squirrel (Sciurus carolinensis) was blamed for 23% of all reported problems, followed by the cottontail rabbit (Sylvilagus floridanus) and the striped skunk (Mephitis mephitis). The distribution of wildlife-related problems was independent of socioeconomic factors such as income and lot value, but dependent upon the respondent's community of residence. Responses of homeowners to wildlife problems were not affected by socioeconomic factors but by the type of problem. Only one half of all respondents attempted to solve their problem. Of those who did try, approximately one half were successful. Tolerance toward a problem depended upon the species involved.

The existence of a previous problem with a species lessened respondents' likeability of that species and usually made respondents favor a decrease in the number of individuals of that species. Respondents' species preferences strongly correlated with their stated management goal for a species, and the experience of a previous problem made the preference rating given to a species an even stronger predictor of the preferred management goal for that species. That is, out of respondents who disliked a species or group, those who had experienced problems with that animal were more likely to want a reduction in the species' number than other people. A respondent with a non-rural background was more likely to have a stronger correlation between likeability of a species and desired management option for that species. The urban resident is more emotionally attached to animals, and does not respond to wildlife problems and control in the same way as rural residents respond to agricultural pest management. The knowledge of what characteristics affect occurrence of wildlife-related problems and attitudes toward wildlife is an important component of urban wildlife management.

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RESOURCES, ADMINISTRATION, & OTHER

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Towards a Humanistic Response to the Social Pathology of Nuclearism-Educating for Peace within the Behavioral-Empowerment approach.

AUTHOR Charles Barbieri **DATE OF COMPLETION** January 1984

INSTITUTION School of Natural Resources, University of Michigan (Master's Thesis)

DEPARTMENT / PROGRAM Behavior and Environment Program

THESIS ADVISOR James Crowfoot, Henryk Skolimowski and Pat Bidol

WHERE FULL THESIS IS AVAILABLE From Author: 217½ Bucholz Ct., Ann Arbor, MI 48103

This study examined three major areas of concern for the peace movement in the U.S. : 1). Exploring the differing epistemological approaches to peace education and their consequences to the peace movement in general is the emphasis in Chapter 1; 2). Chapters 2 and 3 document the barriers and challenges to the Behavioral-Empowerment approach to peace education and; 3). Chapters 4,5,6, and 7 outline specific components of the Behavioral-Empowerment approach to peace education.

The need for this study arose out of the fact that there has been only a minor emphasis on critically analyzing differing epistemological approaches to peace education. It seems that while peace educators major concern is responsing to the growing public attention to peace issues, they have, for the most part, neglected to systematically outline and analyze the differing epistemological approaches and methodologies in educating for peace. It is of utmost importance that such an analysis be sensitive to the educational needs of the peace movement. This study is one attempt to first undertake such an analysis, and then to present both the specific components of one approach to peace education- the Behavioral-Empowerment approach- and the barriers and challenges inherent in this approach.

The Behavioral-Empowerment approach deals with perceptions, belief systems, and values people have in viewing peace issues. There is an emphasis on analyzing and understanding the use of psychological power by the dominant class of political and military leaders to manipulate and control general public opinion. Peace education inevitably becomes a difficult and challenging task since there are many individual and social barriers that hinder the educational process. Individually, psychological phenomenons such as cognitive dissonance, psychic numbing and feelings of despair block even the initial, let alone, an understanding and concern for peace issues. Socially, the barriers to educating for peace are enormous. As a culture we suffer from a critical problem of understanding present day issues or crises in obsolete outdated ways of thinking. Anthropologists call this phenomena cultural lags. Robert Jay Lifton, a psychohistorian, calls it cultural dislocation.

The foremost challenge to peace educators is not one of education and learning, but is one of diseducating and unlearning previously accepted beliefs and values about war, peace, national security, nuclear weapons and our capacity to change the world. The grave problems nuclear weapons pose to the world and all of humanity are truly evolutionary in nature. The fact that we, as a human species, must learn and change our understanding of something (nuclear weapons and the possibility of a nuclear holocaust) before not after it actual occurs is a task that is truly significant and unique in all of human history.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Appreciation of Human Trophic Relationships: Alternative Ways to Increase Public Awareness of Nutritional Ecology

AUTHOR Jeanne Louise Harrison **DATE OF COMPLETION** 7/28/82

INSTITUTION Washington State University (Master's Thesis)

DEPARTMENT / PROGRAM Program in Environmental Science and Regional Planning

THESIS ADVISOR Gerald L. Young

WHERE FULL THESIS IS AVAILABLE WSU

Food for all organisms is obtained through the intricate web of relationships that ecologists call the trophic structure. This is true for humans in health, growth, maintenance, and reproduction, as it is for other organisms. One result of this complex system is that few people have attained significant awareness of the place of humans in the trophic structure, of the implications that such relationships have for the daily life of the individual and future well-being of all humankind.

The problem posed in this thesis is that greater understanding of trophic structure is increasingly necessary as humans face growing numbers. This means more adaptive feeding strategies, including eating lower on the food chain. These strategies will be difficult to implement unless greater understanding of the place of humans in the web of trophic relationships is achieved.

A composite human nutritional ecology challenges us all to act intelligently with respect to decisions within food systems when furnished with adequate information across disciplinary boundaries--a composite of traditional academic disciplines, radical modes of access, and transitional forms of study. It is a composite including and explicating trophic structure as identified in ecology and adapted to information on human food resources and consumption patterns compiled by nutritionists, and then infused with the perspective of human culture/environment interactions from anthropological works. Radical modes, such as Snyder and Lappé provide a rich context for understanding nutritional ecology in palatable ways not included in other approaches.

This perspective on nutritional ecology is built on the foundation of work done by several disciplines plus a number of more radical alternatives. The information is available; it simply needs to be synthesized, integrated, and made accessible to a larger public. Trophic structure is a necessary concept which can contribute directly in human ecology to the study and understanding of human population groups and environmental problems.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE A Program of Public Information and Public Participation for Improved Black Bass Management

AUTHOR Bernard J. Ziolkowski **DATE OF COMPLETION** August 1983

INSTITUTION State University of New York (Master's Thesis)

DEPARTMENT / PROGRAM College of Environmental Science and Forestry Graduate Program in Environmental Science

THESIS ADVISOR Dr. David L. Hanselman

WHERE FULL THESIS IS AVAILABLE Above listed college and department

A program of public information with an emphasis on public participation was developed to introduce New York State's innovative black bass management regulations to the bass angling and general angling publics. The program addressed the need to develop in those publics an understanding and acceptance of fisheries management policy resulting from a four-year study of the population dynamics of largemouth and small mouth bass in New York State (Green et al., 1983).

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Biological concepts and terms such as proportional stock density, predator-prey relationships, harvestable surplus, effects of harvest, and protected size ranges were explained. The importance to successful bass management of a volunteer angler-cooperator program was introduced and emphasized.

Audience assessment was accomplished by the administration of a 23-question survey at the 1981 New York State Fair. Out of 1433 anglers responding, 1103 properly completed their questionnaires. The survey assessed fishing preferences, perceptions of fisheries management, opinions on bass management, attitudes toward regulations, and relative preference of various methods of communicating with the anglers.

"The Angler Factor: New York's Key to Quality Bass Fishing," a 24-minute slide presentation with a taped narrative was subsequently developed as the main thrust of the informational program. The presentation utilizes computer generated graphics, original artwork and photography to both inform the publics and maintain their interest. It is being used by the New York State Department of Environmental Conservation Bureau of Fisheries, and is available through the Department's eight regional offices.

Green, D.M., W.D. Youngs, and B. J. Schonhoff. 1983. Population dynamics of largemouth and smallmouth bass in New York State (in press). New York State Department of Environmental Conservation; Albany, N.Y.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE COMMUNITY DEVELOPMENT USERS' GUIDES OF ENVIRONMENTAL LAWS AFFECTING HUD PROJECTS

AUTHOR Holly Farnsworth Reid **DATE OF COMPLETION** May, 1984

INSTITUTION Duke University, Durham, N.C. 27706 (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Dr. Jack Royer

WHERE FULL THESIS IS AVAILABLE SFES Publications Office, 208 Biological Sciences

57 pp.; copy fee $4.35

This project describes the effort made by the Office of Energy and the Environment (OEE) in the United States Department of Housing and Urban Development (HUD) to produce plain English users' guides of the environmental laws and regulations which affect their block grant recipients. All recipients of Federal money must comply with the National Environmental Policy Act (NEPA), and the other applicable environmental laws. HUD identified the problem of waste and mismanagement associated with 1) unnecessary work done to meet perceived requirements, 2) project delays, and 3) poor communication. The users' guides are an attempt to improve communication between those at HUD headquarters in Washington who author the environmental regulations, and those at the local level who must abide by those rules and requirements.

The 1974 Housing and Community Development Act transferred the responsibility for certifying compliance with the environmental requirements from HUD to the actual recipients of Federal monies. The change in responsibility necessitated a greater attempt by HUD to provide more explicit technical asistance to recipients. In May, 1983, OEE began producing plain language users' guides of the environmental laws to meet these calls for clearer, easier-to-understand technical assistance. Overall, intra- and interagency review proceeded relatively unencumbered and cooperation remained high. Although the guides have not been printed (as of March, 1984), very positive feedback from HUD field offices who reviewed the preliminary drafts indicates that this technical assistance will be well received and well used by block grant recipients.

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Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE Impacts of Abandoned Surface Coal-Mined Lands on the Local Population in Southwestern Indiana

AUTHOR Omolo, Fenner O. DATE OF COMPLETION May, 1984

INSTITUTION Indiana State University, Terre Haute, IN 47809 (Master's Thesis)

DEPARTMENT / PROGRAM Geography and Geology

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(Citation number if applicable) Series I, Number 1464

This study was involved with direct impact of abandoned surface coal-mined lands on the local population in southwestern Indiana. Five problem areas studied have a total of 237 acres of gob, 71 acres of slurry, 22 acres of spoil areas, 10 dangerous high walls, 13 acres of haul road, and 4 acres of tipple. Only three problem areas have post-reclamation plans, while the rest do not. Pollution of lake #29 in Green Sullivan I.K #29 problem area in Sullivan County and the lake west of Centenary in Electric Shovel problem area in Vermillion County has been caused by sediment and acid mine drainage from the gob and slurry, spoil areas and gob, respectively. A hog farm in Shasta and an agricultural field in Hammilmans (I.KN2), problem areas both in Knox County, have been polluted by acid mine drainage and sediments from gob, slurry, haul road, tipple and spoil areas, respectively.

Since abandonment, some of the problem areas have been used for unauthorized and dangerous recreational purposes, and disposal of residential waste, while others have been used as water resource for agricultural purposes.

Feasible reclamation procedures were outlined for each problem area. Physical aspects included soils and overburden, surface and ground water, physiography and topography of spoils. These elements were explored to determine the impact abandoned coal-mined lands have on the local population. The study determined that 1066 local residents of southwestern Indiana receive direct impact from abandoned coal-mined lands.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE The Impact of Urban Amenities Upon The Location Of Selected Corporate Headquarters and Research and Development Facilities in Central Ohio

AUTHOR Julie E. Snider DATE OF COMPLETION August 1984

INSTITUTION The Ohio State University (Master's Thesis)

DEPARTMENT / PROGRAM School of Natural Resources, Division of Environmental Education

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WHERE FULL THESIS IS AVAILABLE Interlibrary Loan: The Ohio State University

The primary purpose of this study was to investigate urban amenity perceptions held by decision makers in selected corporate headquarters and research and development facilities, as well as those of leaders in local and state chambers of commerce and departments of development within central Ohio. Urban amenities are a community's natural, cultural, and social resources which give it some advantage over other communities in terms of attracting business.

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Thirty-seven respondents were given verbal and written questions in interviews. Sixty amenity attributes were ranked according to importance for location and suitability in central Ohio. Means revealed that most important and most suitable were quality medical services, quality public schools, quality higher education, and quality housing. Air passenger service and local/state tax structure were clearly important for location but unsuitable in central Ohio.

Respondents were placed in subsamples for analysis and group responses were compared. The most notable difference in perceptions occurred between firm decision makers and leaders from chambers of commerce and departments of development. Therefore, chamber-development people should carefully assess areas in which most difference appeared. Better understanding of this problem may improve chances of attracting firms like those sampled to central Ohio. The Importance-Suitability scales can be used by those conducting similar research in other locales. Amenity perceptions of service sector employers not included in the present study should be investigated. Attention should be paid to the relationship between respondents' valuing an amenity and finding it suitable in their communities.

Environmental Education / Communication Project or Thesis Report Form

North American Association for Environmental Education

TITLE THE MERCURY POLLUTION OF HIGH ROCK LAKE: A CASE STUDY ANALYSIS OF POLICY DECISIONS WITH IMPLICATIONS FOR ENVIRONMENTAL MEDIATION

AUTHOR Edgar Miller **DATE OF COMPLETION** May, 1983

INSTITUTION Duke University, Durham, N.C. 27706 (Master's Thesis)

DEPARTMENT / PROGRAM School of Forestry and Environmental Studies

THESIS ADVISOR Dr. Richard T. Di Giulio

WHERE FULL THESIS IS AVAILABLE SFES Publications Office, 208 Biological Sciences

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This study analyzes the state of North Carolina's policy procedure in dealing with the mercury pollution of High Rock Lake in Davidson County, North Carolina. In conjunction with this policy analysis, an assessment of the ecological, socio-economic, and political factors associated with the case is made. The project examines the adequacy of the state's evaluation of the problem, and develops suggestions for future research based on this evaluation. Finally, the project, drawing from the above analysis, clarifies interest group positions and identifies discrepancies that exist between these groups. An overview of litigative or mediative alternatives is also included within the study.

This study represents two years of involvement with this case of mercury pollution. The persons involved have provided valuable insight through interviews and other means of communication. In assessing the nature of the problem, research on the ecological aspects of mercury, the legal implications, and dispute resolution alternatives developed a broad base for the conclusions put forth by this paper. The goal of this project is to increase public awareness of the problem by providing information concerning violations of pollution control standards, the ecological impacts of mercury, and what is being done about the problem. By presenting the facts in an objective way, the state and the public may then draw their own conclusions. The suggestions made in this paper should provide the state with alternatives for resolving the controversy and mitigating public concern.

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INDEX TO PAST VOLUMES

VOLUME VI (1983)

1. Site Analysis

A Description and Natural Resource Inventory of the Labrador Hollow Unique Area, by Jane A. Offringa...p. 3

Guide Handbook: Oliver H. Kelly Farm and Interpretive Center, Elk River, Minnesota, by Judith A. Meyerdierks...p. 3

Proposed Management Options for the Amelioration of Recreational Impacts on Coyote Gulch, Glen Canyon National Recreation Area, by Mary Barbara Carey...p. 4

2. Parks and Camps: Users and Interpreters

Audience Attention as an Indication of the Quality of an Interpretive Presentation on a Nature Trail, by Kenneth LaVerne Hensley...p. 5

Determination of Differences Regarding Motives for Camping, Management Preferences, and Preferences for Programming Expressed by Experienced and First-time Campers at Pinchot and Prince Gallitzin State Parks in Pennsylvania, by Robert David Griffith...p. 5

The Effects of Canoe Tripping on the Self-concepts of Campers in a Long-term Therapeutic Wilderness Camp, by Keith E. Paulk...p. 6

Nonformal Environmental Education in Natural Resources Management: A Case Study in the Use of Interpretation as a Management Tool for a State Nature Preserve System, by Edward C. Olson...p. 6

3. Media Communications

The Effectiveness of Communication Forms Used by the Soil Conservation Service and Soil and Water Conservation District: A Duel Perspective, by Sylvia J. Wong...p. 7

Energy and the Environment, by Karen Kirkman...p. 8

Methods of Reinforcement and Visitor's Attention Span at an Interpretive Exhibit, by Frederic Hom...p. 8

(Volume VI 1983 continued)

Preferences for Promotional Materials Used by a Recreation and Park Agency, by Sheri Lee Eyles...p. 9

The Relationship Between Attention Span, Information Retention, and Satisfaction Using Various Methods of Reinforcement at an Interpretive Exhibit, by Jane Miller Horvat...p. 9

The Use of National Park Planning Workbooks for Citizen Participation: Enhancing Effective Communication, by Deborah Anne Simmons ...p. 10

A Content Analysis of The Conservationist: A Post Earth Day Perspective, by Blaise A. Corcoran...p. 11

4. Pupil-Centered Studies

An Assessment of Ecological Knowledge Gain Resulting from a Resident Environmental Education Program, by Leslie Marie Cancilla...p. 12

The Implementation and Evaluation of Microcomputer Simulations in a College Level Environmental Education Course, by John F. Schar ...p. 13

5. Teacher-Centered Studies

The Effect of Three Training Methods on the Teaching Preparation of Counselor-Teachers in a Resident Environmental Education Program, by Susan Lynette Johnson...p. 14

A National Survey of Curriculum Needs as Perceived by Professional Environmental Educators, by Trudi L. Volk...p. 15

Process-oriented Training for Camp Counselors: Its Effects on Group Cohesion and Job Performance, by Harry R. Buchanan...p. 16

Safety in the Chemistry Laboratory, by Thomas W. Woodruff...p. 16

Values and Environmental Education: A Workshop Model for Training Teachers and Leaders, by Deborah S. Yandala...p. 17

The Use of the Arts in Interpretive Programming, by Susan Dale Alexander...p. 18

6. Citizen-Centered Studies

An Environmental Attitude Survey: Costa Rica, by Jo Ann Myer Valenti ...p. 19

Environmental Action and Locus of Control: Validation of the Perceived Environmental Concern Measure, by Jonathan Tulman ...p. 20

(Volume VI 1983 continued)

Environmental Perceptions and Behaviors of Graduate Students and Professionals Working With Cooperative Wildlife Research Units, by Michael A. Squillo...p. 21

Local Attitudes Toward Nonstructural Floodplain Management in North Carolina, by John H. Lohnes...p. 21

The Sand Lakes Quiet Area Controversy: Citizens Involved in Environmental Dispute Management, by Bonnie Anderson...p. 22

7. Resources, Administration and Others

An Assessment of Environmental Education in West Virginia, by Devra Deems...p. 23

An Economic Analysis of Hunter Education in North Carolina, by Thomas Dennis Peterson...p. 23

Forest Fire Frequency in a Central Eastern Washington Pinus Ponderosa Stand, by Michael Joseph Brown...p. 24

Measuring the Influence of Vegetation of Solar Retrofitting an Urban Neighborhood, by Kim Mills...p. 24

A Program Development and Evaluation Model Derived From Nature Centers With School Programs, by Janet Lynn Wolanin...p. 25

Valuing the Environment: New Trends in Legislation and Economic Theory, by Susan Katherine Parry...p. 26

Virginia: Residential Solar Thermal Energy Policies and Recommendations, by Randall E. Meyers...p. 26

A Study of Vegetative Ecology of Burley Mountain in the Southern Cascades of Washington, by William C. Cunha...p. 27

Visual Assessment of Children's and Environmental Educators' Urban Residential Preference Patterns, by Augusto Quinones Medina...p. 27

An Investigation of Noise as an Environmental Hazard, by Lynn Phillips Grace...p. 28

VOLUME V (1982)

1. Site Analysis

Ecological Analysis and Management Plan for the Salisbury Nature Study Area in Rowan County, North Carolina, by Jeffrey C. Babcock...p. 3

An Interpretive Prospectus for the Robert Scruggs House, Cowpens National Battlefield, S.C., by Frederick H. Boyles...p. 3

Mud Mountain Sam Project Resource Management Plan, by Kenneth G. Knouf...p. 4

A Framework for Monitoring Recreational Opportunities as a Function of Land Use, by Steven C. Bennett...p. 4

Baseline Floristic Study: The Yakima Rim Skyline Trail, by Sharon Kay Gordon ...p. 5

The Erie Extension Canal Recreation Area--A Developmental Plan, by James David Bigley, Jr. ...p. 5

2. Parks and Camps: Users and Interpreters

Familiarity and Adaptation: A Study of Family Attendance at Interpretive Activities, by Sam H. Ham...p. 6

The Use of Time by Organized Tour Groups, by Ellen L. Wenderoth...p. 7

The Urban Environmental Center, by Lori D. Mann & Karen A. Rutledge...p. 7

The Development of Self-guided Materials for a Nature Conservancy Sanctuary, by Beth G. Silverman...p. 8

An Organizational Plan for the Development of a Nature Center at Haywood County Hospital, North Carolina, by Judith A. Hutchinson...p. 8

School Camps and Environmental Education in the Inland Northwest: A Descriptive Analysis, by Randall D. Langseth...p. 9

3. Media Communications

Effectiveness of Interpretive Signs in Increasing the Environmental Knowledge of Campers, by Nevin Burt Webster, Jr. ...p. 10

The Effectiveness of a Cartoon-Illustrated Interpretative Brochure on the Enhancement of Campers' Knowledge of Rules and the Decrease in Rates of Rule Violation per Campsite, by Thomas P. Gallup...p. 11

Communication Preferences Related to Involvement Levels of Wisconsin Bong Area Pheasant Hunters, by Rebecca Jean Heimark...p. 11

(Volume V 1982 continued)

A Consumer-Oriented Approach to Interpretive Program Planning for Birding, by William Joseph Hobson, Jr. ...p. 12

Guidelines in Trail Signing, by Carl Dixon Sherman...p. 12

4. Pupil-Centered Studies

Changes in Students' Attitudes Towards Conservation Resulting From Outdoor Education: A Case Study, by Joseph K. Tufuor...p. 13

The Effects of Teaching Conservation of Resources to Primary Age Children, by Evelyn Cormier...p. 14

Development and Evaluation of an Environmental Education Curriculum, by Deborah A. Simmons & Christine McElroy...p. 14

The Effectiveness of an Outdoor Resident Living Experience on Attitude Change of Upper Elementary Grade Level Students in the Area of Environmental Education, by John T. Conroy...p. 15

A Study of the Content of Population Education in the United States, by Arti Laroia ...p. 15

A Comparison of Environmental Attitudes Among International and American Students Studying in the United States, by Sanghoon Lee...p. 16

Industrial Arts Activities for Nature Trail Construction, by Michael P. Schlein ...p. 16

A Comparative Study of the Attitudes of Fifth and Sixth Graders in Selected Outdoor Activities, by Cynthia A. Jenkins...p. 17

Environmental Education Through Use of Children's Literature in the Primary Grades, by Gayle D. Prager...p. 17

Teaching Outdoor Science and Environmental Education Using the Station Approach, by Mike Schneider...p. 18

The Development of Instructional Materials for Teaching About Selected Northeast Wisconsin Game Birds and Their Habitat to Elementary Students Utilizing a Natural Area, by Joann M. Schmitt & Henry J. Schmitt...p. 18

An Environmental Curriculum Guide Emphasizing Children's Literature and Art, K-3, by Keiko Kochi Aresh...p. 19

5. Teacher-Centered Studies

Developmental Variables Affecting Environmental Sensitivity in Professional Environmental Educators, by Nancy J. Peterson...p. 20

A Study of Teacher-Sponsored Environmental Education Inservice Workshops, by Marylynn Burkhardt Kaake...p. 21

Environmental Lessons for Substitute Teachers, by Mary C. Cedarholm...p. 21

Volunteer Staff Training Programs in Interpretive Centers, by Barbara A. Middleton ...p. 22

Changes in Student-Teacher Perceptions Following a Residential Outdoor Program, by David John Bateson...p. 22

Toward a Comprehensive Strategy for Environmental Values Education, by Micahel J. Caduto...p. 23

Winter--A State of Mind, by Michael L. Madden...p. 24

6. Citizen-Centered Studies

Elitism and the Environmental Movement, by Barry Ingber...p. 25

An Investigation into Environmental Activism, by Mark A. Larson...p. 26

An Assessment of Intragroup Differences in Conservation Attitudes and Environmentalism, as a Function of Activity Involvement Among Fly Fishermen, by Merrill S. Katz...p. 27

Off-Road Motorcycle Management in Pennsylvania: A Preference Study of Management Policy Statements for Off-Road Motorcycle Use, by Dennis S. Rentschler ...p. 27

Environmental Literacy Training for Citizen Groups, by Bruce D. Sullivan...p. 28

Public Participation in the Development of Hazardous Waste Management Policy: A Sourcebook for Planning, by Lee A. Krohn and James J. McGough...p. 28

A Comparison of the Environmental Knowledge and Attitudes Between Disabled and Non-Disabled College Students, by Mark F. Herman...p. 29

The Surrogate Phenomenon: The Dangers of Substituting NEPAs Environmental Impact Assessment Process for an Effective Problem Solving Process, by James R. Stordahl...p. 29

Education and Its Role in the Diffusion of Passive Solar Technologies, by Nancy A. Nylen...p. 30

The Islands Trust: An Institutional Experiment in the Management of Scarce Natural and Social Resources, by Laura Kathryn Porcher...p. 31

Hazardous Substances in North Carolina: An Analysis of Public Perceptions, by James S. Mead et al. ...p. 32

How Preservation Efforts Affect Local Populations: An International Study of Communication, Conflict and Amelioration, by Mary L. Anderson...p. 32

A Critique of Public Involvement Mechanisms and Assessments: The Canadian Experience, by Beverly Jaffray...p. 33

7. Resources, Administration and Others

Source Separation As a Solid Waste Management Option: Four Case Studies, by Helen Roland...p. 34

Land Use Classification Terminology: Variation in Meaning and Implications for Public Policy, by Michael D. Bruder...p. 35

Snowmobiling in Minnesota: Growth and Government Response, by Walter Wieland ...p. 35

VOLUME IV (1981)

1. Site Analysis

The Design of a Self-guiding Interpretive Trail at Camp New Hope, North Carolina, by JoAnn Marie Roesler...p. 3

Developing School Sites Into Outdoor Classrooms, by Carol DeGroot...p. 3

Biophysical Inventory, Management Guidelines, and Environmental Education Program Development for Rose Creek Nature Preserve, by Edward C. Olson II...p. 4

Management Issues Pertaining to the Use of Northern National Parks: A Case Study of the Northern Yukon, by Louis Zivot...p. 4

An Interpretive Prospectus/Park Plan for Redcliffe Plantation, by Jeffrey P. McNeill ...p. 5

Hobcaw Barony Interpretive Conceptual Master Plan, by John D. McEachern...p. 5

An Interpretive Master Plan for the Grassland Nature Center: Grover Colorado, by Wendy Ann Walker...p. 6

A Plan to Increase Total Usage of a Developing Environmental Facility Based on Norrie Env'l Museum, by Carolyn Rutgers...p. 6

A Conceptual Development Plan for a Commercial Outdoor Education/Recreation Enterprise in the Adirondack Mountains of New York, by James W. Culp...p. 6

An Interpretive Prospectus for the Clemson University Experimental Forest, Clemson University, South Carolina, by Lynne R. Beeson...p. 7

2. Parks and Camps: Users and Interpreters

Participation and Nonparticipation in Interpretation: A Study of People, Places and Activities, by Gary Wayne Mullins...p. 8

A Study of User Patterns and Maintenance Guidelines for the Alum Cave Bluffs and Chimney Tops Trails, Great Smokey Mountains, by Thomas Hallman Fearrington, Jr. ...p. 9

Injuries and Illnesses in Outdoor Education: A Study of an Ohio Upper-Elementary Resident Outdoor Education Program, by Cheryl Ann Arnold...p. 9

An Assessment and Explanation of the Importance, Extent and Management of Vandalism in Urban Parks in Columbus, Ohio, by Sally M. Blower...p. 10

An Assessment of the Enjoyment and Interest Level for Senior Citizens in Sensory and Non-Sensory Interpretive Hikes, by Francis M. Brockmeyer...p. 10

Assessing Visitor Participation/Nonparticipation in Interpretive Activities Through Unobtrusive Measures, by Tamara Lynn Nelson...p. 11

Planning for Winter Recreation: A Case Study of Elk Island National Park, by William Marshall...p. 11

Evaluation of the Use and Effectiveness of Two Types of Non-personal Interpretive Media in Yellowstone National Park, by Doris B. Tai...p. 12

An Evaluation of the Impact of Visitor Orientation Procedures at Old Sturbridge Village, by Mary Leanoir Brydon-Miller...p. 12

A Public Relations Study of Law Enforcement at Shenandoah National Park, by John F. Bradberry...p. 13

Communication Messages on a Natural Resources Management Controversy, by Gail Gawenda...p. 13

3. Media Communications

Incorporation of Videotape in Pre Design Site Analysis for Urban Sites: A Case Study Prototype, by Felix H. Peronilla, Jr. ...p. 14

Comparison of Three Mass Media for Communicating Forestry Information to Young People, by Ross L. Tomlin...p. 15

The Response of a Resource Periodical to the Environmental Movement: A Content Analysis of American Forests, 1970-1978, by Carol A. DeWolf...p. 15

A Survey of Wis. Natural Resource Magazine Subscribers, by Kathryn Gebhardt Blackfield ...p. 16

4. Pupil-Centered Studies

The Development, Teaching, and Assessment of the Concept "Away" in Primary Grade Children, by Moira A. Gleason...p. 17

The Development of an Instrument to Measure Energy Use Attitudes Among Junior High School Students, by Lawrence Allan Morton...p 18

Internal Locus of Control as a Prerequisite to Environmental Action Taking: An Assessment of the Youth Conservation Corps, by Barbara Ann Miller...p. 18

An Autotutorial Approach to the Teaching of Water Quality At the Secondary Level Based on Planet and Kephart Philosophies, by Ronald Vander Velden...p. 19

A Study of Differences Between a Single Discipline Approach and an Interdisciplinary Approach in Teaching Environmental Education at the Middle School Level, by Elizabeth J. Page...p. 19

Content Analysis of Pictures Drawn by Preschoolers in Response to a Nature Interpretation Program, by Sara Lustbader...p. 20

5. Teacher-Centered Studies

Developing a Skilled Energy Workforce: The Integrated Training Experiences Concept, by Emily S. Buckman...p. 21

An Assessment of the School Zoo Field Trip, by Elizabethann Marshdoyle...p. 22

Issues in the Recruiting and Training of Volunteer Field Guides in a Public School Environmental Education Program, by Mary MacGinitie Ferm...p. 22

A Description of Program Goals of Selected Resident Outdoor Environmental Education Centers in the State of Ohio, by Dennis H. Wiegman...p. 23

Recreational Leadership and Adolescent Self-Concept Change in a Two Week Residential Camp Program, by David Michael Griffin...p. 23

Curriculum Foundations for Naturalist Training: A Descriptive Study, by James C. Shuman...p. 24

6. Citizen-Centered Studies

An Investigation of the Relationships Between Perception of Self and Perception of an Environmental Challenge--The Energy Situation, by Linda E.W. Weaver ...p. 25

A Survey of Visitor Knowledge of Urban Mammals in Two Montgomery County, Maryland Nature Centers, by Julie Ann Melvin & John Michael Baines...p. 26

An Educational Program to Prepare Citizens for Participation, by Linda-Jo Schierow ...p. 26

Policy Implications Derived From a Coorientational Evaluation of the Communications Environment of a Natural Resources Agency and Its Citizen Clientele, by John N. Trent...p. 27

Reclaiming Onondaga Lake: The Role of Community Attitudes, by Richard E. Vertigan ...p. 28

A Study of Land Use and Preservation With Emphasis on the Feasibility of Maintainence of Open Space in the Piedmont Triad Region of North Carolina, by Holly Cullum Walker ...p. 28

Richland County Farmers' Perceptions of Non-Point Source of Pollution, by Kurt W. Gutknecht...p. 29

An Investigation of the Valuative Components of Attitudes Related to the Concept of Nuclear Power, by Alfred J. Girondi...p. 29

A Citizen's Guide to the Use of Transferable Development Rights in the New Jersey Pinelands, by Victoria Leigh Johnston...p. 30

Lake Associations as Environmental Groups: A Study of the Lake Associations of Cenesee County, Michigan, by Christopher N. Hull...p. 30

Education for Energy and Rural Development in Thailand, by Cynthia A. Lowry...p. 31

7. Resources, Administration and Others

The Development and Application of Program Materials for the Urban Park and Recreation Recovery Program, A Federal Recreation Grants-in-Aid Program, Heritage Conservation and Recreation Service, by Runore C. Wycoff...p. 32

A Survey of the Current Use of Information and Education Within Natural Resource Management Agencies, by Robert R. Mindick...p. 33

Establishing Criteria for Comprehensive Planning of Environmental Education Programs, by Thomas J. Marcinkowski...p. 33

Mountain PLAY (Packet for Learning About Your Mountain), by Theresa Marie Carroll ...p. 34

An Evaluation Research Proposal for a Public Information Campaign on Urban Forest Management, by Hernando V. Gonzalez II...p. 34

The Environment Conservation Authority 1970-1977: An Assessment and Analysis, by Angela Clark Vuchnich...p. 35

Approaches and Methodologies for Environmental Impact Analysis, by Daryl A. Mikalson ...p. 35

VOLUME III (1980)

1. Site Analysis

A Guide to Selected Natural Sites for Day Field Trips--San Francisco Bay Region, by Beverly Jane Hawley...p. 3

Educational Survey of Mendonca Ranch, East Bay Municipal Utility District, by Paul F. Collett...p. 3

An Interpretation Concept Plan for Cold Lake Provincial Park, by W.J. McMillan ...p. 4

West End Park, by P. Bond...p. 4

Nose Hill: A Resource Study, by B. Edwards...p. 4

An Interpretive System for the Banff Mall: A Proposal, by R. Ashburner...p. 5

Management of Vegetation, Wildlife and Recreation in the West Block, Cypress Hills Provincial Park, Sask., by E.G. McGregor...p. 5

Kananaskis Valley Village, by R. Helton...p. 5

A Guide to Designing Accessible Outdoor Recreation Facilities, by David E. Jasperse ...p. 6

Survey of Bicycle Trail Potential in Uwharrie National Forest, by Karen S. Sullenger

Establishing a School Nature Area in an Urban Environment, a Guide for Teachers, by Janice E. Oliver...p. 7

Recommendations for the Design of an Outdoor Nature Area at Willow Creek School, by Gail A. Brekke...p. 7

A Decision-Making Process for Analyzing Wilderness Campsite Resource Impact in Kejimkujik National Park, by L.D. Clarke...p. 8

Resource Inventory and Management Plan for the Nyika National Park, Malawi, by Thomas A. Mill...p. 8

Developing Curriculum for the Outdoor Nature Center, by Robert E. Allen...p. 9

A Proposed Master Plan for an Environmental Education Center at Sugar Pine Point State Park, Lake Tahoe, by Gerald E. Bishop...p. 9

A Proposal for a Trail Planning Methodology: A Case Study: The Great Divide Trail, by B. Deeg...p. 10

River Interpretation: Development of an On-Water Trail, by Fred J. Wooley...p. 10

An Evaluation of Forest Protection Policies Concerning Spruce Budworm (Choristoneura Fumiferana (Clem.)) in the National Parks of the Maritimes, by Richard E. Davies...p. 11

Planning for Urban Wildlife: A Method and Its Application to Fish Creek Provincial Park, by J. Van Camp...p. 11

2. Parks and Camps: Users and Interpreters

An Economic Evaluation of the Wildland Recreation Program in the Bathurst Pilot Project, by Gwendolyn S. McKay...p. 12

An Evaluation of Three Nature Interpretation Techniques, by Patricia A. Deane ...p. 13

A Study of Camping Objectives of Mennonite Organized Resident Church Camp Directors, Campers, and Parents in Comparison to Spahn's (1958), by Anne B. Lehman...p. 13

The History of the Hayward Area Shoreline Environmental Education Project, by Constance Edwards...p. 14

(Volume III 1980 continued)

Developing an Interpretive Booklet..Porcupine Mts. State Park, by Mark R. Peterson ...p. 14

The Relationship of Satisfaction to Visitor Activities in a Park Setting, by Stephen Murray Holland...p. 15

Motive, Management Preferences, and Perceptions of Crowding of Backcountry Hiking Trail Users in the Allegheny National Forest of Pennsylvania, by Curtis S. Bowley ...p. 15

Banff: Visitor Activities and Regional Growth, by Donald W. Irwin...p. 16

Management of Visitor Use at Inglewood Bird Sanctuary, by Judith Larkin...p. 16

Interpretation in the Urban Natural Park, by B. McMillan...p. 17

Visitor Response to Interpretation at Selected Historic Sites, by Lucinda Lou Irwin ...p. 17

Three Environmental Living Curriculum Models, by Warren Arnold...p. 18

Fine Arts Summer Resident Camp Resource Guide, by Ted A. Brekke...p. 18

The Zooseum: An Integrated Institution for the Future, by Jerome E. Freilich...p. 19

A Basis for Interpretive Planning: The Demographic and Behavioral Characteristics of Visitors to the Eleven Point National Scenic River, Missouri, by Woodward Scott Bousquet...p. 19

The Environment of Small Residential Care Facilities, by Caryl Morton...p. 20

3. Media Communications

An Analysis of the Relationship Between the National Environmental Policy Act of 1969 and Coverage of Environmental Issues in Two Newspapers From 1962-1977, by Daniel Joseph O'Meara...p. 21

A Slide-tape Program Introducing the San Francisco Bay National Wildlife Refuge, by Fred LaDon Taylor...p. 21

Towards Improved Communications Between Grassroots Environmental Activists and the Press, by Walter E. Winans...p. 22

A Readership Survey of the Candid Conservationist, by Frederick J. White...p. 22

An Evaluative Comparison of Single and Dissolve Slide Projection Techniques, by Thomas Arthur Miles...p. 23

Educational Effectiveness of Interpretive Displays, by Michael A. Chemsak...p. 23

Research Proposal for Urban Forestry Campaign, by Hernando Gonsalez II...p. 24

4. Pupil-Centered Studies

Environmental Education Through Camping for the Inner City Schools, by Margaret Bradford...p. 25

Effects of an Environmental Studies Curriculum on Seventh and Eighth Grade Volunteers, by Melva Rush Hahn...p. 25

Effects of Audio-Visual Presentations on Environmental Awareness, by Douglas J. Glasenapp ...p. 26

Evaluating Educational Experiences: A Proposed Theoretical Model and Experimental Analytic Instruments, by Duane Robert Pierson...p. 26

Curriculum Guide in Outdoor Education for Oakland Diocese Elementary School Systems, by M.L. McElhiney...p. 27

The Development of a Curriculum for High School Students on a Backpacking Trip Through the Sierra, by Norman Loofborrow...p. 27

The Influence of an Outdoor Environmental Residential Experience on Attitudes, by Flora Eileen Bozzone...p. 28

Outdoor Activities for Seventh Grade Remedial Mathematics Students, by Wilda Bannister Forde...p. 28

An Investigation of the Effectiveness of Project Learning Tree at Lincoln Middle School, Alameda, California, by Richard Reid...p. 29

The Development of a Primary Grade Curriculum for the Playground Environment, by Jackie Gilmore...p. 29

The Garfield Elementary School Environmental Education Experimental Program, by Clovis Long...p. 30

Assessing Marine Environment Awareness of High School Students, by Larry W. Chin ...p. 30

Approaching Outdoor Education in a City Setting, by Billie Tinsley...p. 31

A Study of Moral Judgment, Values, and Locus of Control Development in Students of Environmental Education, by Kimberley Heimsath...p. 31

An Environmental Living Program on a Pioneer Homestead for Fourth and Fifth Graders, by Carol Place...p. 32

The Isolate in Sociometrically Designed Groups at Resident School Camp, by Maile White...p. 32

A Pilot Study Measuring Pre- and Post-Test Results of a Cognitive Test for Environmental Education, by Roberta M. Schane...p. 33

The College Park High School Earth Science Camping Program, by Gary Passey ...p. 33

Ways to Approach Outdoor Education With Grades One Through Three, by Erma Owens ...p. 34

Effect of an Environmental Social Science Class on the Values of Urban Students, by Frances Tomasko...p. 34

Student Attitude Change as a Result of the Presentation of Materials Representing Various Opinions on Strip Mining, by Terry L. Wilson...p. 35

The Effect of Process Instruction on Problem Identification Skills in Environmental Education, by Gertrude L. Volk...p. 35

The Effect of an Environmental Education Course on Student Behavior Patterns, by Greta Gangloff...p. 36

Experiences Related to Oceanic Knowledge and Attitudes of Tenth Grade Students in Virginia, by Rosanne White Fortner...p. 36

5. Teacher-Centered Studies

Literature as an Environmental Education Approach: A Proposal for a Teacher Preparation Program, University of the Philippines, by Narita Manuel Gonzalez ...p. 37

(Volume III 1980 continued)

Urban Ecology: An Audiovisual Presentation, by Mary Frost Lawton...p. 37

Inservice Environmental Education Model for Bilingual Classroom Personnel, by Julia Nieto...p. 38

A Survey of Hong Kong Elementary Teachers' Attitudes Toward Environmental Education, by Wun-Ping Ma...p. 38

A K-12 Curriculum Model for Environmental Education: Teaching Toward Ethical Decision-Making, by Carolie B. Sly...p. 39

Attitude Change Toward the Environment and Toward Outdoor Education of Counselor-Teachers in a Resident Outdoor Education Program, by Dianna L. Elliott...p. 39

Adventures in Environmental Chemistry, by Edward F. Carmo...p. 40

A Teacher Assessment of the Understanding and Use of Goals for Curriculum Development in Environmental Education, by Randall Champeau...p. 40

Some Values in Outdoor Education for Enrichment of Curriculum, by John Rossi...p. 41

A Pilot Study for Encouraging Teachers to Use an Environmental Learning Center, by Marjory L. Galvin...p. 41

Planning Travel to Enhance Classroom Teaching, by Lucille Ward...p. 42

Extent of and Need for Interdisciplinary Environmental Education, by Elois Demaray ...p. 42

Environmental Education Intern Process: An Evaluation, by Janis Albright...p. 43

Changes in Attitudes Toward Environmental Education and Selected Teacher Behaviors of Teachers Participating in Environmental Education Workshops, by Teresa A. Meyers ...p. 43

A Study of the Influence on Participants of an Environmental Education Workshop, by Maxine Burnworth...p. 44

A Comparison of Selected Training Programs for Environmental Education Volunteers, by Mary Hallesy...p. 44

6. Citizen-Centered Studies

Public Involvement in the USDA Forest Service, by M.A. Press...p. 45

Beverage Container Deposit Legislation--A Paradigm For Future Environmental Progress, by Mark Alexander Ishkanian...p. 45

Preference Input Forms as a Method of Obtaining Feedback From Citizen Advisory Committees in the Public Participation Program of a Water Resources Planning Study, by Josephine Marquis Smith...p. 46

Diffuse Concerns: An Assessment of the PLUARG Public Consultation Program, by R.A. Mason...p. 46

Land Use Policy Formulation in Northern Communities, by K.L. Persson...p 47

A Study of Variables Associated With Environmental Action and Locus of Control Among Four Dissimilar Populations, by Joyce Mowery Smith...p. 47

Attitudes, Values, Communication Principles, and the Analysis of Waste Management Policy for Cold Climates, by F.J. Tester...p. 48

Employee-Public Evaluation of Industrial Pollution Control, by Mark A. Stelmacher ...p. 48

An Investigation of the Relationship Between "Sense of Community" and the Physical Environment of Residential Areas, by M.F. Soper...p. 49

Resource Recovery in McHenry County--Present Practice and Future Possibilities, by Alice Vild Howenstine...p. 49

Nose Hill: Concepts for Its Use, by S. Barber...p. 50

Flood Risk Maps, and Local Attitudes to Floods and Flood Mitigation, as Part of the National Flood Damage Reduction Program: A Comparative Review, by John W. Handmer...p. 50

Paradigms for Paradise: A Study of Environmental Values in the United States, by Judith Bonney Meckling...p. 51

Attitudes of the Public and Citizen Advisory Committee Members Toward Land and Water Resources in the Maumee River Basin, by Calvin Lee Taylor...p. 51

7. Resources, Administration and Others

Improving Access to Master's Theses in Environmental Education, by Christopher Yuen ...p. 52

A Study of Selected Env. Ed. Coordinators in the Commonwealth of Pennsylvania, by Christene A. Almon...p. 52

The Environmental Impact as Related to Financial Institutions, by Bennie Littles ...p. 53

The History and Development of the Department of Natural Resources at Ball State University, Muncie, Indiana, by Pamela Sue Popovich...p. 53

The Development of Marine Science Mini-units for Use on the Secondary Level, by Milton Werner...p. 54

Henry David Thoreau: A Qualitative Naturalist's Approach to Nature Study, by David A Pepi...p. 54

Evaluation of a Teacher's Guide Integrating a School Garden With Curriculum, by Dianne L. Peterson...p. 55

The Nature and Extent of Raptor Shooting in the Northeast With Recommendations For an Education Program, by Bruce Wright Talbot...p. 55

Crafts and Simple Teaching Devices for Environmental Education, by John L. McNeel ...p. 56

Farm, Food and Environmental Education, a Manual for Elementary School Teachers, by Eric L. Jorgensen...p. 56

A Guide to the Common Wild Shrubs and Vines of Pennsylvania, by Robert Maloney ...p. 57

Eco-Tour, by Phil Ockerman...p. 57

The Potential for Managing Various Insects and Their Habitats for Educational Purposes, by Susan G. Kains...p. 58

Extending Environmental Learning Through a Visual-Verbal Process: Some Activities for Second Grade Students Using Soil Animals, by Peter H. Debes...p. 58

VOLUME II (1979)

1. Site Analysis

The Recreation Potential and Aesthetic Qualities of Two East Texas Rivers, by David M. Knotts...p. 3

Hobcaw Barony Interpretive Conceptual Master Plan, by John D. McEachern...p. 3

Haywood County, North Carolina, Hospital: Development of a Nature Trail for Patient Therapy, by Elizabeth Moore...p. 4

An Approach to Play Area Design, by Donna W. Pitz...p. 4

A Self-Guiding Interpretive Trail at Camp New Hope, by Jody M. Roesler...p. 5

Ecological Survey of Fairbanks Wildlife Management Area, by Michael A. Spindler ...p. 5

Lake Louise: A Site Analysis and Development Proposal, by Janet Carpenter Thomas ...p. 6

2. Parks--Users and Interpreters

User Perceptions, Attitudes, Environmental Preferences: An Aid to Coastal Planning, by Gerald Doell...p. 7

Directory of Interpretive and Environmental Education Areas and Facilities in Idaho, by Diane Spott...p. 7

3. Media Communications

The Environmental Voice of the Oil and Forest Industries, 1958-1977, by Nancy Bavec ...p. 8

Environment: Covering the Urban Millieu, by Robert A. Griffin...p. 8

An Inquiry Into the Role of Social Mythologies as Root Causes of Environmental Problems, by William Garth Hansen...p. 9

Environmental News Coverage on Wisconsin Daily Newspapers: A Comparison of Reporter and Editor Views on Environmental Issues, by Ronald C. Holcomb...p. 9

The Metropolitan Milwaukee Area Carpooling Program: Using Communication to Promote Environmentally-Sound Behavior, by Susan McDowell O'Connell...p. 10

Attitudes of American Magazines Toward Atmospheric Nuclear Testing, 1945-1965, by Frederick Michael O'Hara, Jr. ...p. 10

Mantahala Highway Simulation Game, by David M. Plott...p. 11

Space Utilization in Natural Resources Magazines, by Bruce Stromp...p. 11

4. Pupil-Centered Studies

The Effects of Participation in a Naturalist Aide Program on the Self-Concepts of Senior Citizens, by Ronald H. Ahlbrandt...p. 12

The Effects of a Water Conservation Instructional Unit on the Values Held by Sixth Grade Students Concerning Water Conservation, by Andrew Aird...p. 12

Adult-Child Cross-Age Environmental Education, by Beverly Jo Angell...p. 13

Middle School Students' Value Clarification in Environmental Education as a Function of Autonomous Research, by R. Henry Bisaga...p. 13

Influence of an Outdoor Environmental Residential Experience on Attitudes, by Flora E. Bozzone...p. 14

Environmental Education in an Economics Context: Effects on Students' Knowledge and Attitudes, by Diane L. Brook...p. 14

Self-Esteem and the United States Youth Conservation Corps Enrollee, by Jerilyn Everhart Brunke...p. 15

The Effect of a Four-Week Primitive Camping Experience on Inner-City Children's Perceptions of the Natural Environment, by Christine Chaapel...p. 15

The Web: An Environment Education Program For Summer Camps, by William S. Chlat ...p. 16

The Effects of Participation in a Creative Dramatics Program on the Self-Concept of Mentally-Retarded Children in a Six-Week Day Camp, by Johnathan Nichols Fisher ...p. 16

Change in Attitudes Toward Four Selected Environmental Issues of Enrollees in Two Eight-Week Youth Conservation Corps Camps, by David A. Haring...p. 17

The Effects of an Outdoor Interpretive Program on the Self-Concepts of Educable Mentally Retarded (EMR) Boys, by William P. Kaiser...p. 17

Recreation in the New York State Prison System, by Joseph Korb...p. 18

Comparative Effects of an Environmental Awareness and an Environmental Action Instructional Model on the Overt Environmental Behaviors of Eighth Grade Students, by John Ramsey...p. 18

Environmental Education for the Inner-City, by Harvey L. Rollerson...p. 19

The Effect of an Outdoor Adventure Program on the Self-Esteem of Delinquent Adolescents, by Robert D. Shull...p. 19

The Effects of Using Environmental Case Studies in a Taxonomic Biology Program to Influence the Environmental Attitudes of Tenth Grade Students, by Robert Joseph Wilson...p. 20

5. Teacher-Centered Studies

Characteristics of Selected Environmental Coordinators and Their Programs, by Christine A. Almon...p. 21

The Influence of a Teaching Model on Selected Preservice Teachers' Concepts in Ecology and Environmental Education, by William J. Bluhm...p. 21

An Analysis of Strategies for Teaching Environmental Concepts and Values Clarification in Kindergarten, by Covey K. Bryant...p. 22

A Proposal for Economic Education in High School, by Andrew W. Corcoran...p. 22

Ecological Succession in an Abandoned Field: Developed, Taught, Evaluated, by Norman E. Downing...p. 23

Attitude Change Toward the Environment and Outdoor Education of Counselor-Teachers in a Resident Outdoor Education Program, by Dianna L. Elliott...p. 23

(Volume II 1979 continued)

Knowledge of Federal and Illinois Pollution Control Agencies and Laws Held by Ill. Environmental Education Coordinators and Teachers, by Janet Fryman...p. 24

Environmental Education Instructional Materials: An Evaluation, by Sister Mary Lou Pleitner C.S.J. ...p. 24

6. Resources, Administration and Others

Public Involvement in Forest Service Planning With Particular Attention to Uwaharrie National Forest's Land Management Planning Project, by Jean E. Davis...p. 25

The Dynamics of Domination: A Metalogue Concerning Exploitation as Rooted Obstacle to Total Environmental Quality, by Glen Edwin Erickson...p. 25

An Experimental Trail Guide System For Use in Background Management, by Mary Sewall Lindsey Hamblin...p. 26

Management Possibilities for the Haw River Division of the Duke Forest With Emphasis on Recreational Trail Development, by John A. Hiott...p. 26

Legal Aspects of Health and Safety for Operating Youth Camps, by Angeline L.P. Hunter ...p. 27

The Continuing Education Needs of Wildlife Professionals Employed by New York State, by Mark A. Oberlander...p. 27

Unit Planning and the District Ranger, by Vincent J.A. Williamson...p. 28

VOLUME I (1978)

1. Site Analysis

An Interpretive Prospectus For the Clemson Experimental Forest, Clemson University, South Carolina, by Lynne R. Beeson...p. 3

The Analysis of the Development of an Interpretive Center Museum to Interpret Environmental Dynamics: A Case Study of the Man, Time and Environment Museum at the Chippewa Nature Center, Midland, Michigan, by Felice V. Brunett...p. 3

Environmental Education--Moraine State Park A Development Plan, by John Patrick Cavanaugh ...p. 4

Freshwater Fish Pond Culture and Management, by Marilyn S. Chakroff...p. 4

A Conceptual Development Plan For a Commercial Outdoor Education/Recreation Enterprise in the Adirondack Mountains of New York, by James W. Culp...p. 5

Ecology of Central Washington Semi-Arid Lands: A Documentary Film, by Phillip R. DeBusschere...p. 5

Flora and Fauna of Po National Park, Upper Volta, West Africa, by Jon F. Heisterberg ...p. 6

A Study of User Patterns and Maintainence Guidelines for the Alum Cave Bluffs and Chimney Tops Trails, Great Smokey Mountains National Park, by Thomas Hallman Fearrington, Jr. ...p. 6

An Interpretive Prospectus/Park Plan for Redcliffe Plantation, by Jeffrey P. McNeill ...p. 7

The Identification and Evaluation of Specified Outdoor Environmental Education Sites in Eastern Washington, by Richard Niemeyer...p. 7

Developmental Plan for the Shenango Education Center, by Daniel Sherwin...p. 8

Heartland--A Natural History of Onondaga County, N.Y., by Mike Storey...p. 8

A Freshwater Wetland, by Stephen R. Scholle...p. 9

The Identification and Evaluation of Appropriate Outdoor Environmental Education Sites in Western Washington, by Susan Grunenfelder Wertz...p. 9

2. Parks--Users and Interpreters

A Basis for Interpretive Planning: The Demographic and Behavioral Characteristics of Visitors to the Eleven Point National Scenic River, Missouri, by Woodward Scott Bousquet...p. 10

Characteristics of the Visitors to the Environmental Education Area at Land Between the Lakes, Kentucky, by Amy Louise Esmond...p. 10

Interpreting a Museum Exhibit: The Message Effectiveness and Cost Effectiveness of Alternative Audio Messages, by Susan Kay Hambleton...p. 11

The Origin and Characteristics of Visitors at Selected Publicly Financed Recreation Areas In Indiana, by Thomas F. Hastings...p. 11

System for Measuring Visitor Participation in Interpretive Programs in Indiana State Parks, by Mary Ellen Herbert...p. 12

Interpretive Objectives From Audience Expectations at Selected Parks and Museums, by James Patrick Kranek...p. 12

The Effects of an Interpreter's Nonverbal Behavior on Park Visitors During a Natural History Presentation, by Patricia Lee Martinkovic...p. 13

Active Language in Interpretive Trail Signs and Rules Leaflets: Its Effects on Visitor Enjoyment and Information Retention, by Nancy J. Moeckel...p. 13

A Survey of Resource Materials for Environmental Interpreters, by Gary W. Mullins ...p. 14

Criteria for the Development of Interpretive Nature Trails for the Visually Impaired, by Jonathan R. Schwartz...p. 14

The Function of Interpretation as Perceived by Park Visitors and Interpreters, by Valeen Adams Silvy...p. 15

An Analysis of Selected Park Visitor Motivations for Attending Environmental Interpretation Programs, by John A. Veverka...p. 15

Visitor Analysis at the Cincinnati Zoo With Implications for Interpretive Planning, by Jill Rae Willis...p. 16

3. Media Communications

Communication Characteristics and Knowledge Levels of Selway-Bitterroot Wilderness Users, by William Wales Bramlette...p. 17

A Q-Study of Reader Attitudes Toward Conservation and Content for Missouri Conservationist Readers, by Gary D. Fitzgerald...p. 17

Attitudes and Information Sources of Hunters Toward Waterfowl Lead Poisoning and the Use of Non-Toxic Shot, by Donald W. Floyd...p. 18

(Volume I 1978 continued)

Environment: Covering the Urban Milieu, by Robert J. Griffin...p. 18

4. Pupil-Centered Studies

Supplementary Environmental Education Reading Program: As a Motivating Technique to Improve Reading Comprehension, by Sandra Terndrup Aimonetti...p. 19

A Study of the Relationship Between Superstition and Perception of the Natural Environment Among Children in Marion, Indiana, by Sam F. Carman...p. 19

Prior Membership in Outdoor-Oriented Organizations: Its Relationship to Environmental Attitudes in Young Adults, by Richard A. Ellis...p. 20

The Effects of a Simulation Game on the Attitudes of College Students Enrolled in an Environmental Management Course, by James Michael Heilman...p. 20

A Study of the Sixth Grade Environmental Education Program in Herkimer County, New York, by Joseph R. Lindenmayer...p. 21

An Evaluation of Environmental Education Attitude Changes of Students in Seventeen Fifth Grade Classes in Fox Chapel Area School District, Pittsburgh, Pennsylvania, Based on One-Week Residential Experience, by David Porterfield...p. 21

An Evaluation of Environmental Attitudes Developed in a Graduate Methods Class as Compared to an Undergraduate Methods Class, by Nancy Roberts Porterfield...p. 22

Environmental Attitudes of Sixth Graders After the Integration of Environmental Education Into the Language Arts Curriculum, by Jane S. Robbins...p. 22

The Effectiveness of Slide Presentations and Field Trips as Methods of Instruction for Environmental Education, by Robert Warren Schneider...p. 23

Attitudinal Changes as a Result of Outdoor Experiences, by Nancy Lower Sheetz...p. 23

Student Attitude Change As a Result of the Presentation of Materials Representing Various Opinions on Strip Mining, by Terry L. Wilson...p. 24

5. Teacher-Centered Studies

A Study of Factors Important to Environmental (Conservation-Outdoor) Education Instruction, by Wanda Kay Buterbaugh...p. 25

Assessment of Current Administrative Training of Chief Interpreters in a Six-State Region, by Rebecca Haserodt...p. 25

A Study of the Feasibility of Establishing an Environmental Education Center for the Columbus Public Schools, by Steven C. McCaw...p. 26

Factors Which Influence Elementary Teachers Use of the Out-of-Doors, by George d. Mirka ...p. 26

The Development of a Masters Level Environmental Education Program for Glen Helen at Antioch College, by Ralph Emerson Ramey...p. 27

Teacher's Guide to Aquatic Study for Cispus Environmental Learning Center, by John F. Scarola...p. 27

6. Resources, Administration and Others

Status of Environmental Education Programs in Public School Districts of the Commonwealth of Pennsylvania, by Jeanne Ann Ashley...p. 28

Outdoor Recreation Participation Levels With Cohort Analysis, by Duane Roy Dippon ...p. 28

The Role of the Environmental Education Consultant in an Urban Setting: Toledo Ohio, by B. Diane Boyd...p. 29

A Bibliometric Analysis of the Literature of Environmental Education, by Ronald W. Force...p. 29

A Study of Personal Participation in Action for Environmental Quality, by Mary C. Forrest...p. 30

Assessing Regional Meeting Participant's Opinions on Environmental Education Implementation Strategies for Ohio, by Michael Jerome Mann...p. 30

Environmental Impact of the Hanford Operations, by Delos Jan Mettler...p. 31

Resource Recovery in a Rural Community, by Judith Lynn Parson...p. 31

A Survey of the Adult Environmental Education Courses Offered by the Ohio Public School System, by Henry Ludwig Schulte, Jr. ...p. 32

Evaluation and Impact of Planning and Development Under the Washington State Shoreline Management Act, by Donald S. Skone...p. 32

The Effects of Dispersed Recreational Activities on the Microbiological Quality of Forest Surface Waters, by Kevin J. Varness...p. 33

An Investigation of the Status of Land Use Planning Education in Environmental Education Master Plans, by Debra Devers Walton...p. 33

Human Responses to Silvicultural Practices, by Jimmie L. Yeiser...p. 34

GRADUATE PROGRAMS IN ENVIRONMENTAL EDUCATION AND COMMUNICATIONS

This is the sixth volume of Recent Graduate Works to include descriptions of graduate programs in environmental education and environmental communications. Each year our listing has grown reflecting, we feel, the importance of this reference to individuals working in the field.

Program information is requested from all institutions contacted for thesis and dissertation abstracts. The information provided by the institutions is reproduced here exactly as it was reported.

The programs are listed alphabetically by state and then by institution. The information is organized in the following manner:

Name of the Institution
Division offering the program — Name of the person to contact for more information
Title of the program
(Degrees offered)

A brief description of the program.

We wish to thank all those who contributed information on their graduate programs.

ARIZONA

University of Arizona
School of Renewable Natural Resources
Renewable Natural Resources
(B.S., M.S., Ph.D.)

William W. Shaw
SRNR, Bio. Sci. East 325
University of Arizona
Tucson, AZ 85721

Coursework and graduate studies are available involving interpretation, education and communication as it pertains to the management of natural resources.

CALIFORNIA

California State University, Hayward
Department of Teacher Education
Master's in Curriculum with
specialization E.E.
(M.S.)

Esther P. Railton
Dept. of Teacher Education
Cal. State U., Hayward
Hayward, CA 94542

The newly-revised program is for teachers, naturalists, recreation leaders. It includes one-third foundations courses, one-third electives and one-third environmental education. The latter addresses interdisciplinary infusion of E.E. in the curriculum, effective use of field trips and community resources, resident outdoor education and adventure programs.

Humbolt State University
Department of Education
Master of Arts in Education:
Spectial Studies Env. Education

Dr. Alan Leftridge
Environmental Ed. Coord.
Department of Education
Humboldt State University
Arcata, CA 95521

The focus is to help students become proficient with the methods of promoting environmental awareness. The degree is directed at students interested in developing ways of sharing their concern for their environments with certain audiences utilizing various educational and interpretive techniques. Degree may be obtained without possession of a teaching credential.

San Francisco State University
School of Education
Environmental, Camping &
Outdoor Education
(M.A.)

Dr. William Hammerman
ECO Education Program
San Francisco State University
1600 Holloway Avenue
San Francisco, CA 94132
415/469-2282

The study of the utilization of the outdoors and community resources as learning laboratories. Emphasis is placed on curriculum development, teaching strategies and evaluation.
Knowledge and skills in Environmental, Camping and Outdoor Education may be used by teachers, recreation leaders and interpreters in designing innovative instructional programs, developing effective teaching techniques and improving human understanding.

Stanford University
Department of Communications
(M.A., Ph.D.)

William Paisley, Assoc. Prof.
Department of Communications
Stanford University
Stanford, CA 94305

Students in the M.A. programs focusing on Journalism, Film, Broadcasting, or Communication Media and Social Change as well as students in the Ph.D. program in Communication Research can elect to conduct thesis research on problems of environmental communication such as the flow of environmental information to the public and to policy-makers. Alternatively, students may participate in the design of information systems or campaigns to improve the flow of environmental information.

COLORADO

Colorado State University
College of Forestry and Natural Resources--Dept. of Education
Conservation Education
(M.Ed., M.S., Ph.D.)

Dr. Charles L. Mahoney
Prof. of Resource Conservation
Dept. of Recreation Resources
Colorado State University
Fort Collins, CO 80523

Graduate Programs lead to the Master of Education, Master of Science and Doctor of Philosophy degrees. The Conservation Education program prepares students to become teachers at the junior high and secondary levels. Emphasis at the graduate level is on furthering knowledge of natural resources conservation and management, developing more effective teaching techniques and innovative instructional programs.

DELAWARE

University of Delaware
College of Education
Educational Development
Environmental Education; Science Ed.
(M.Ed., Ed.D.)

Dr. Les Picker
College of Education
University of Delaware
Newark, DE 19711

This is a flexible program, designed to meet the employment needs of those entering the field of environmental education and/or science education. Teacher certification is required for entrance.

FLORIDA

Florida State University
Department of Curriculum & Instruction
Science Education (M.S.Ed.)
Social Studies Education (M.S.Ed.)

Dr. Rodney F. Allen, Professor
Social Studies Education

Dr. Ronald M. Good, Professor
Science Education

205 Stone Bldg.
Florida State University
Tallahassee, FL 32306
904/644-6553

No specific program in environmental education is offered; however, master's candidates in science and social studies education may develop a program of studies with that focus. Students are encouraged to do so.

GEORGIA

University of Georgia
College of Education
Adult Education (M.A.)
Science Education (M.A.)
Social Science Education (Ed.S.)
Recreation & Leisure Studies (Ed.D.)

Prof. R.N. Saveland
203 Dudley Hall
University of Georgia
Athens, GA 30602

Franklin College of Arts & Sciences
Geography Department (Ph.D.)

School of Environmental Design
Landscape Architecture (BLA, MLA)

School of Forestry

Institute of Ecology

No description of programs available.

HAWAII

University of Hawaii at Manoa
Dept. of Educational Foundations
Emphasis in Environmental Education
(Masters, Ed.D.)

Chairman, Graduate Field
Dept. of Educ. Foundations
University of Hawaii
West Annex 2, Room 222
1776 University Ave.
Honolulu, HI 96822

The Department has several areas of emphasis, one of which is environmental education. The program works in conjunction with the Environmental Studies Program in the University.

IDAHO

University of Idaho
College of Forestry, Wildlife, & Range Sciences
Interpretation/Communication
(B.S., M.S., Ph.D.)

Dr. James R. Fazio

Dr. Sam H. Ham

Dept. of Wildland Recreation Management
College of Forestry, Wildlife, & Range Sciences
University of Idaho
Moscow, ID 83843

Interpretation/communication is one of three curriculum options in the Department of Wildland Recreation Management. In addition to an introductory course in interpretive methods, majors take an applied laboratory course, at least 12 supportive electives, and practice interpretation with local school groups and through seasonal employment with land management agencies.
Work in environmental interpretation, environmental education or resource communications may be pursued through interdisciplinary studies leading to the M.S. in Wildland Recreation Management or to the Ph.D. Other areas of concentration include recreation planning, wilderness and dispersed recreation management, tourism, economics, administration and others.

ILLINOIS

George Williams College
Division of Leisure & Environmental Resources Administration
Environmental Education/Interpretive Services Administration
(M.S.)

Steve Van Matre
George Williams College
555 Thirty-first Street
Downers Grove, IL 60515-9960

The purpose of this concentration is to prepare leaders who can breathe freshness and vitality into peoples' appreciation and understanding of the world around them. The emphasis is on providing the skills necessary for effective motivation, communication, educational program development, organization, and administration. The program emphasizes the importance of sunlight, air, water, and soil as basic to any good environmental education or interpretive program. In the belief that lasting learning takes place when the learners are actively involved, the concentration is project-oriented. Whether one is interested in environmental education, natural or cultural interpretation, or a combination of all three areas, this program is designed to help the student become an effective leader in the field.

Northeastern Illinois University

College of Arts & Sciences
Dept. of Geography & Environmental Studies
Geography & Environmental Studies
(M.A.)

Karl A. Kriesel, Grad. Coordinator
Dept. of Geog. & Env. Studies
Northeastern Illinois University
5500 N. St. Louis
Chicago, IL 60625

Program is designed to provide advanced analysis of environmental and spatial systems. Included are ecological studies of human-environmental interrelations, studies of rapidly changing landscapes, locational studies concerning the geometrics of movement, size, shape and distance, and studies of environmental resources in terms of their interpretation, development and use. Urban land use planning sequence is also available.

Northern Illinois University

Lorado Taft Field Campus
Outdoor Teacher Education
(Ms.Ed.)

Dr. Clifford E. Knapp
Box 299
Oregon, IL 61061

The master's degree program in Outdoor Teacher Education consists of a minimum of 30 semester hours, 21 of which must be taken in outdoor-environmental education and 9 outside the area. Full-time students may complete the degree in one year. Thesis and non-thesis options are available as well as graduate assistantships and fellowships.

Northern Illinois University

College of Liberal Arts & Sciences
see description
(M.S.)

Dr. Burley V. Bechdolt
Northern Illinois University
Department of Economics
Dekalb, IL 60115

The university offers M.S. degree programs in the following departments whose programs produce possibly significant graduate work on environmental topics: Biological Sciences (Ph.D. also); Geography (emphasis in Natural Environmental Systems, Urban Economics, and Meteorology); Geology; Economics (Ph.D.) also); Chemistry (Ph.D. also); Physics; and Political Science (Ph.D. also).

Sangamon State University

Public Policy and Administration
Environmental Studies Program
(M.A.)

Dr. Edward Hawes, Convener
Environmental Studies Program
Sangamon State University
Springfield, IL 62708

The M.A. degree provides students with the knowledge and skills necessary to function effectively in today's environmental arenas. Students choose between a concentration in either Environmental Administration or Environmental Planning, with carefully structured curricula, or develop an Individualized Course of Studies in energy, bio-cultural education and interpretation or another field.

Southern Illinois University
at Carbondale

Dept. of Curr., Instr. & Media
Science and/or Environmental Ed.
(M.S. Ed., Ph.D.)

Dr. Harold Hungerford

Dr. Audrey Tomera

Dept. of C.I.M.
323 Pulliam Hall
Southern Illinois University
at Carbondale
Carbondale, IL 62901

Degrees are offered in curriculum and instruction with an emphasis in either science or environmental education or a combination. The Ph.D. involves a minimum of 64 semester hours. A research emphasis exists for all graduate programs. Many opportunities also exist for internships, practicums and cognate courses outside the College of Education.

Southern Illinois University
at Edwardsville

School of Science and Technology
M.S. in Environmental Studies

George Arnold, Coordinator
Box 99
Southern Illinois University
at Edwardsville
Edwardsville, IL 62026

The environmental studies program is interdisciplinary and leads to a Master of Science degree in Environmental Studies. The faculties of all departments are available for reference and instruction. Students select their own topics for research. Besides developing marketable skills in analysis and communication, the program attempts to cultivate broad perspectives on major environmental problems.

INDIANA

Ball State University

Department of Natural Resources
Natural Resources
(M.S., M.A.)

Dr. Donald E. Van Meter,
Chairman
Dept. of Natural Resources
Ball State University
Muncie, IN 47306

The Dept. of Natural Resources offers a graduate major in natural resources leading to a Masters of Arts or a Masters of Science degree. A cognate (minor) in natural resources is also available for graduate students pursuing a doctoral degree in several other disciplines. Graduate programs are individualized for each person, with consideration given to the student's undergraduate academic background, professional experience and future employment interests.

Indiana University

School of Public & Environmental Affairs
Environmental Programs
(MSES)

J.C. Randolph, Director
SPEA Environmental Programs
400 E. 7th
Poplars 438
Bloomington, IN 47401

Most of the environmental programs of Indiana University emphasize the application of environmental science to the policy-making process. The approach is solution-oriented. Most programs provide a basic background, with varying emphasis, on technical skills, applied science, and knowledge of the political process. Students become specialists in particular aspects of environment issues, yet have a broad perspective in terms of technical abilities and socioeconomic concerns.

Purdue University

Dept. Forestry & Natural Resources
Outdoor Recreation
(M.S., Ph.D.)

Douglas M. Knudson
Dept. of Forestry
W. Lafayette, IN 47907

Interpretation as part of recreation resource management is studied in terms of economic and sociological impacts.

IOWA

Iowa State University

Professional Studies in Education
(M.S.)

Dr. Thomas Tanner
141 Bessey Hall
Iowa State University
Ames, IA 50011
515/294-7252

In the following programs, whose numbers correspond to those above, there can be an emphasis on environmental education (EE), with EE faculty member as the major professor and EE as the topic of thesis or creative component. All programs are designed by student and major professor to meet the student's individual needs and interests.

1. M.Ed. (creative component), M.S. (thesis), Ph.D. Administered by the department's Curriculum and Instructional Technology section.

2. M.S., M.A. The program is divided among three areas chosen by the student, e.g. botany, child development, education. All three contribute, in complementary fashion, to the creative component or thesis.

KENTUCKY

Eastern Kentucky University

Dept. of Recreation & Park Administration
Recreation & Park Administration
(B.S., M.S.)

Dr. James McChesney
College of Health, Physical Education & Recreation
Dept. of Recreation & Park Administration
Begley 403
Eastern Kentucky University
Richmond, KY 40475

Degree in Recreation & Park Administration with opportunity to focus on outdoor/nature interpretation and recreation programs. No thesis requirement.

Murray State University

Dept. of Instruction & Learning
Education (emphasis Environmental Education)
(M.A.)

Dr. Terry L. Wilson, Director
Center for Environmental Ed.
Murray State University
Murray, KY 42071

Murray State University offers graduate degrees with major emphasis in Environmental Education. The programs are administered by the center for Environmental Education and are designed to provide students with both classroom and practical experience. The program emphasizes holistic and humanistic approaches to teaching and learning, which focus on human/earth relationships. TVA's nearby Land Between the Lakes, a 170,000 acre national demonstration in environmental education and recreation, serves as an extended campus for formal and non-formal environmental education programs.

LOUISIANA

McNeese State University

College of Science
Environmental Science
(M.S.)

Dr. Victor Monsour, Chairman
Dept. of Environmental Science and Microbiology
McNeese State University
Lake Charles, LA 70609

This is a general program in environmental science. Thesis is optional. Total minimum semester hours for the degree with a thesis is 24; whereas without a thesis the minimum number of hours required is 36. Specialization comes via the thesis.

MARYLAND

The John Hopkins University
Dept. of Geography and
Environmental Engineering
(M.A., M.S.F., Ph.D.)

Dr. M. Gordon Wolman, Chairman
Dept. of Geography and
Environmental Engineering
The John Hopkins University
Baltimore, MD 21218

The program in geography and environmental engineering has three major facets: surficial earth processes, environmental engineering including systems analysis, and resources and human geography. The emphasis is upon research and teaching at the graduate level in problems crossing disciplinary lines. These include such areas as location of public facilities, regulatory mechanisms in resource management and pollution control, natural processes and their relation to human activities, and the impact of human activities on spatial location and cities. Environmental education and communication are not formal aspects of the curriculum, but closely related to the work and participation of students and faculty in education and environmental decision making.

University of Maryland, College Park
College of Agriculture
Environmental Education
(M.S.)

Dr. Jack Wheatley
Agricultural and Extension Educ.
Room 0200-Symons Hall
University of Maryland
College Park, MD 20742

This program provides expertise in content and methodology appropriate for outdoor education for school systems. Professional park naturalists also are attracted to the program due to this orientation. The program is cross-disciplinary, with students choosing courses from a number of areas, including biology, wildlife management, resource economics, education and geography.

MICHIGAN

Michigan State University
Department of Fisheries & Wildlife
Natural Resources/Environmental Ed.
(B.S.)
Environmental Conservation Education
(M.S., Ph.D.)

Dr. R. Ben Peyton, Assoc. Prof.

Dr. David I. Johnson, Asst. Prof.
Coordinator, NR/EE Program
Michigan State University
East Lansing, MI 48823

An undergraduate program is offered as an interdepartmental effort by the Departments of Fisheries and Wildlife, Forestry, Parks and Recreation, and Resource Development. The NR/EE curriculum leads to certification in environmental education and an approved minor at the secondary level.
Graduate programs are available at both M.S. and Ph.D. levels. Emphasis depends on student needs and career goals may range from natural history interpretation to adult environmental education. Student programs may draw from a wide range of facilities and course offerings at Michigan State University.

University of Michigan
School of Natural Resources
Behavior & Environment Program
(B.S., M.S., Ph.D.)

Dr. Paul Nowak, Chairperson
2006 Dana
School of Natural Resources
University of Michigan
Ann Arbor, MI 48109

The School of Natural Resources offers both an undergraduate and graduate program in Behavior and Environment. Students can specialize in Environmental Advocacy, Environmental Communications, Environmental Instruction or Outdoor Recreation. All four concentrations share common concerns. In each case, the student is asked to take course work in three areas: Theory and Concepts; Skill Acquisition; and Effecting Change. Students desiring work experience are also field placed.

MISSOURI

University of Missouri, Columbia
Graduate School
Environmental Sciences
(M.S., Ph.D.)

Dr. Howard C. Hopps, M.D., Ph.D.
Committee Chairperson
Department of Pathology
School of Medicine
University of Missouri
Columbia, MO 65212

Emphasis is on a multidisciplinary approach to environmental problems--one that cuts across conventional disciplinary barriers. Programs are tailor-made to fit the individual student's needs, and are under the continual supervision of the Environmental Sciences Graduate Area Program Committee. Particular areas of strength include ecology, agricultural sciences, the physical sciences, including the Trace Substances Analytical Center, and sociological approaches to man--environment interaction.

MONTANA

University of Montana
College of Arts and Sciences
Environmental Studies Program
(M.S.)

Ronald E. Erickson
Environmental Studies
University of Montana
Missoula, MT 59812

The program accepts students from any discipline (including a few from education in the past eleven years). Our concern is for analyzing and "solving" environmental problems, and advocacy skills are required. Most students do thesis work or either scientific questions or issues of public safety.

NEW YORK

Lesley College/National Audubon Society

Division of Outreach & Alternative Education
Lesley/Audubon Environmental Education Program
M.S. Environmental Education

Diana Cohen
National Audubon Society
950 3rd Avenue
New York, NY 10022
212/546-9126

Mary Huegel
Lesley College Grad. School
29 Everett Street
Cambridge, MA 02238
617/868-9600

Teaches deep ecology skills experientially in a two year close-knit traveling expedition community; a practical firsthand, nationwide examination of people, places and issues that leads to interpretive, outdoor, counseling, cross-cultural and academic competencies; an M.S. degree; postgraduate grants; internships; and environmental careers with National Audubon Society Expedition Institute affiliates.

New York University

Sch. of Education, Health, Nursing & Arts Professions
Dept. of Cultural Foundations
Environmental Conservation Education
(M.A.)

Professor Tom Colwell
737 East Building
New York University
Washington Square
New York, NY 10003

Interdisciplinary Study of Major Environmental Issues. A wide range of elective courses from the many Schools and Divisions of the University in science and technology, media, social science and education are grouped around core courses and seminars in the philosophical and social issues of environmental problems.

State University of New York at Brockport

Dept. of Biological Sciences
Biological Sciences
(M.S.)

Dr. Joseph C. Makarewicz
Dept. of Biological Sciences
113 Lennon Hall
SUNY Brockport
Brockport, NY 14420

The Dept. of Biological Sciences offers two plans for the Masters of Science Degree in Biological Sciences: Plan I (a thesis program) or Plan II (independent research experience in lieu of thesis). The expertise and experience of 26 faculty members service about 30 graduate students in several areas of research. Approximately 13 faculty are active in environmentally oriented research and teaching. The Department is well-equipped with both conventional instruments and a number of unique facilities (e.g. artificial streams). Field equipment for aquatic and terrestrial ecology are available including four boats. The close proximity of the Finger Lakes Region, Lake Ontario, the Adirondack Park of New York, and the 500 acreas at Fancher Campus of SUNY Brockport provide ample sites for ecological research.

State University of New York
at Cortland

Division of HPER
Nature Recreation
Outdoor Education
Camping
(M.S., M.S.Ed.)

Dr. Linda R. Meyer
Coordinator, Graduate Program
Dept. of Recreation Education
A-310 PER Center
State University College, Cortland
Cortland, NY 13045

A program designed to give graduate level exposure to camping and outdoor education fields. Designed for teachers, camp administrators, nature recreation personnel, and outdoor educators in agency settings. Core of research methods, seminar in literature of recreation and research, administrative problems of camping, outdoor recreation, outdoor education, electives in arts and sciences and supporting areas.

State University of New York
at Plattsburgh

Institute for Man and Environment
Environmental Science
(B.A.)

Dr. James C. Dawson
Director and Professor
Institute for Man and Env't
State University of New York
Plattsburgh, NY 12901

An undergraduate multidisciplinary program and opportunities to develop and environmental science degree with optional tracks in wildlife, ecology, alternate energy, planning, resource economics, and rural sociology. Students complete a senior-year research thesis at the Miner Lester satellite campus. Double major with Faculty of Professional Studies (includes education) is possible. No graduate program.

State University of New York
at Syracuse

College of Environmental Science &
Forestry
Environmental Science
Environmental Education/Communication
(M.S., Ph.D.)

Prof. David Hanselman
Env. Education/Communications
311 Marshall Hall
SUNY-ESF
Syracuse, NY 13210
315/470-6551

This college is upper division and graduate. M.S. and Ph.D. degrees in Environmental Education and Communications are pursued through interdisciplinary studies in the Graduate Program in Environmental Science. Each student, working with his/her professor, charts an individual program based on three criteria: depth in an appropriate subject area; breadth of educational experience; and synthesis of the components. The College is adjacent to Syracuse University and through a unique contractual arrangement, GPES-EE/C students have full access to resources of both ESF and SU. Of particular strengths are the wide array of course offerings in Environmental Science (including Social Science) and Public Communications.

NORTH CAROLINA

Duke University
School of Forestry and
Environmental Studies
(M.F., M.E.M., A.M., M.S., Ph.D.)

Director of Admissions
School of Forestry and
Environmental Studies
Duke University
Durham, MC 27706

Offers graduate study leading to Master of Forestry or Master of Environmental Management degrees in Forest Productivity, Forest Management Science, Resource Ecology, Water and Air Resources, and Resource Economics and Policy. Master of Science, Master of Arts, and Ph.D. degrees offered through the Graduate School. Emphasis is on quantitative methods of resource analysis. Individualized programs of study are possible, including concentration in environmental education, land use planning, ecotoxicology, forest economics, and others. Students with bachelor's degrees in the sciences or humanities are accepted.

North Carolina State University
Recreation Resources Administration
Recreation Resources
(M.S., M.R.R.)

Dr. Charles D. Siderelis
4008 Biltmore Hall
Sch. of Forest Resources
North Carolina State Univ.
Raleigh, NC 27606

The Master of Recreation Resources Administration is a professional degree designed for graduates interested in performing in the role of recreation executive. The Master of Science is provided for graduates desiring a more adequate comprehension of research methodologies for the analysis of recreation systems and for seeking policy and management alternatives. Several specialization are offered.

OHIO

Antioch University
Glen Helen Outdoor Education Center
Teacher/Naturalist Internships
no degree offered

Jean Horn, Director
Outdoor Education Center
1075 St. Rt. 343
Yellow Springs, OH 45387

Graduate students earn ten graduate credits going through five months of on-the-job training as naturalists, working with small groups of 5th-8th grade students who come by classes to our resident center. The facility is located in a 1,000-acre nature preserve owned by Antioch University.

The Ohio State University

Environmental Education
Communications
Environmental Education
Environmental Interpretations
(B.S., M.S.)

Dr. Robert Roth, Chairman
Environmental Education
383 Kottman Hall
2021 Coffey Road
Columbus, OH 43210

Master's candidates may propose their own 45 hour thesis or 55 hour non-thesis program building on a 12 credit hour core of Natural Resources Courses. The candidates progression of courses must be discussed with the graduate advisor prior to acceptance. Criteria for program acceptance includes coherence, and interpretation, education, or communications applicability. Courses may also be taken in other departments.

University of Cincinnati

Curriculum & Instruction
Environmental Education
(M.Ed., Ed.D.)

Dr. Thaddeus W. Fowler
Teachers College, #2
University of Cincinnati
Cincinnati, OH 45221

Individualized program in environmental education with major emphasis on environmentalizing the classroom and using community resources. There is strong cooperation with the U.S. EPA and Cincinnati. A practicum is required.

OREGON

Southern Oregon State College

Graduate School--General Studies
M.S. General Studies: Outdoor Ed.
(M.S.)

Dr. Ronald D. Faut
Biology Department S.O.S.C.
Ashland, OR 97520

The outdoor education program strives to develop leaders in conservation and outdoor education. The program gives the student a broad background in the sciences and the social sciences, and an understanding of the interrelationships of the ecological and economic aspects of conservation. Techniques of outdoor education are emphasized.

PENNSYLVANIA

Pennsylvania State University

Recreation and Parks Department
Recreation and Parks (RC PK)
(M.S., M.Ed., Ph.D.)

Herberta M. Lundegren
267 Recreation Building
Penn State University
University Park, PA 16802

Prepares students for administrative, supervisory, research, and teaching positions in public and private recreation and park systems, in colleges and universities, in voluntary agencies and institutions, and in commercial ventures. The program is oriented to meet the specific needs and research interest of each candidate.

Slippery Rock University
School of Professional Studies
Environmental Education
(B.S. in EE, M.Ed.)

Dr. Craig C. Chase
Environmental Education
Slippery Rock University
Slippery Rock, PA 16057

The undergraduate degree is designed to provide the student with interdisciplinary, holistic values as presented by the academia of many departments of the college.
The graduate degree is designed to prepare program administrators with an expertise in EE programs, siteplanning, and fund-raising as well as field knowledge of environmental components encountered.

University of Pittsburgh
Teacher Development
Science Education
(M.Ed., Ed.D.)

Dr. Albert P. Nous
Assoc. Prof. of Science Ed.
4C12 Forbes Quadrangle
University of Pittsburgh
Pittsburgh, PA 15260

Master and Doctoral level coursework is directed at the design of instructional resources, assessing the extent of cognitive growth of science concepts in young children and adolescents, uses of microcomputers in environmental simulations, and assessing needs of school and community interest groups. The improvement of science education in schools is the primary goal.

SOUTH CAROLINA

Clemson University
Recreation and Park Administration
Environmental Interpretation
(M.R.P.A.)

H. Jesse Grove
277 Lehotsky Hall
Clemson University
Clemson, SC 29632

Students are prepared to function as historic/natural site interpreters themselves, or to effectively utilize the talents of staff interpreters in the role of a recreation and park administrator.

TENNESSEE

East Tennessee State University
School of Public & Allied Health
Environmental Health
(M.S.E.H.)

Monroe T. Morgan, Dr.P.H.
Professor and Chairman
Dept. of Environmental Health
P.O. Box 22960A
East Tennessee State University
Johnson City, TN 37601

Graduate education in environmental health is offered to prepare administrative and technical generalists for a variety of high level positions. Emphasis may include a variety of areas, such as epidemiology, water resources management, food sanitation, air pollution control, solid waste management, occupational safety and health, environmental analysis, and more.

TEXAS

Stephen F. Austin State University

School of Forestry
School of Education
Outdoor/Environmental Education
(B.S., M.S., D.F.)

Dr. Michael Legg
Box 6109 SFA Station
Nacogdoches, TX 75962

A strongly resource-oriented program that is cooperative between the Schools of Education and Forestry. Oriented toward preparing teachers for teaching in outdoor laboratories or nature centers.

Texas A&M University

Department of Recreation & Parks
Recreation & Resources Development (Interpretation)
(MAg., M.S., Ph.D.)

Dr. James H. Gramann
Dept. of Recreation & Parks
Texas A&M University
College Station, TX 77843-2261

The Interpretive Option identifies and provides research-based solutions to communication problems encountered by administrators, managers, practitioners, and educators. The focus is upon the utilization of interpretation as a resource management tool, and upon the communication of technical knowledge in resource management to lay audiences.

UTAH

University of Utah

Dept. of Communication
Communication
(M.A., M.A., Ph.D.)

Dr. Michael Pacanowsky,
Director of Graduate Studies
Dept. of Communication
University of Utah
Salt Lake City, Utah 84112

The department of communication at the University of Utah provides a broad-based theoretically oriented graduate program in communication studies. A primary area within the program is policy research and studies within a communication theory framework are strongly encouraged.

VERMONT

University of Vermont

School of Natural Resources
Natural Resources Planning (M.S.)

College of Education & Social Serv.
Teacher Education (M.Ed.)

Dr. Thomas R. Hudspeth
Environmental Program
University of Vermont
153 S. Prospect
Burlington, VT 05405

(Description follows on next page.)

The UVM School of Natural Resources offers a Master of Science degree in Natural Resource Planning. This interdisciplinary program deals with numerous topics in the broad areas of environment and natural resources. Students choose either a thesis option (30 semester hours of graduate level courses) or a project option (36 hours of graduate level courses). Course selection depends on the personal interests of the students, and varies considerably among participants in the program. Students work closely with their advisors and studies committee. Among possible concentrations or thrusts in the program are: (1) Environmental Education, (2) Environmental Interpretation, (3) Environmental Communication, (4) Environmental Studies, (5) Environmental and Natural Resource Planning, (6) Citizen Participation/Citizen Involvement, and (7) Natural Areas.

VIRGINIA

University of Virginia
Art and Sciences
Dept. of Environmental Sciences
(B.A., M.S., M.A., Ph.D.)

George M. Hornberger, Chairman
Dept. of Environmental Sciences
University of Virginia
Charlottesville, VA 22903

In 1969 the University of Virginia established an interdisciplinary program in environmental sciences to further the understanding of natural and human environments, to foster scientific analysis of environmental issues and problems, and to develop a rigorous academic program for students interested in a comprehensive approach to questions of environmental quality. The department attempts to educate two types of persons: 1) those who wish to acquire a broad, thorough understanding of basic environmental phenomena and processes, and b) scientists who can make effective contributions to the fundamental knowledge of environmental systems.

Virginia Polytechnic Inst. &
State University
University Center Env. Studies
Environmental Studeis
(M.S., Ph.D.)

Dr. John Cairns, Jr.
Univ. Center Environmental
Studies
Virginia Polytechnic Inst. &
State University
Blacksburg, VA 24601

The University Center for Environmental Studies (UCES) was established in 1970 by the Board of Visitors as a component of the Virginia Tech Research Division. The Center is authorized to coordinate and focus University and sponsor resources on environmental problems and concerns within Virginia and the encourage the development of environmental information appropriate to worldwide application.

WASHINGTON

University of Washington
College of Education
C & I: Environmental Education
(M.Ed.)

Dr. Roger G. Olstad
115 Miller DQ-12
University of Washington
Seattle, WA 98195

A program intended for certificated teachers who wish to specialize in environmental education during Master's degree study. It combines work in environmental studies with education, and includes independent study options for students to explore areas of particular interest.

University of Washington
Institute for Environmental Studies (FM-12)
"Interns in Environmental Decisionmaking"
None

Ms. Vim Crane Wright
Asst. Director
Instit. for Env. Studies
University of Washington
Seattle, WA 98195

The "Interns and Environmental Decisionmaking" graduate program was established to train graduate students from a variety of departments in the social, natural and physical sciences to apply technical information in making policy decisions about complex environmental issues. The program involves two core courses ("Science and Environmental Policy: Theory" and "Case Studies"), a 4-18 month internship, and a summary paper.

Washington State University
Washington State University
Colleges of Agriculture & Home Economics, Education, Engineering, and Science
Program in Environmental Science and Regional Planning
(B.S., M.S., M.R.P.)

Dr. Eldon Franz
E.E. Coordinator
Program in Environmental Sci. & Regional Planning
Washington State University
Pullman, WA 99164-4430

The course of study for each student is flexibly designed in a unique, multi-optional interdisciplinary context. The Program features holistic and interdisciplinary perspectives with emphasis on the ecological understanding necessary to prepare students for a variety of roles in the study, planning, and management of resources and the environment. Environmental Education is one of several specializations. E.E. majors are granted Senior High School teaching certificates endorsed for the major and for minors in physical and biological sciences.

WEST VIRGINIA

West Virginia University
Division of Forestry
Environmental Concerns & Interpretation
(M.S.)

Dr. Gene Bammel
325 Percival Hall
West Virginia University
Morgantown, WV 26506

W.V.U. offers a graduate program in Environmental Education and Interpretation preparing the graduate for a career in Environmental Education, Administration or Policy Analysis. Course work is complemented either by a thesis or by a research problem. At least nine hours must be taken in graduate programs outside the Division of Forestry. Some research assistantships are available.

WISCONSIN

University of Wisconsin, Madison
Center for Environmental Comm. & Education Studies
Environmental Communications
(M.A., M.S., Ph.D.)

Dr. Clay Schoenfeld, Chairman
Center for Environmental Comm. & Education Studies
433 North Murray
University of Wisconsin
Madison, WI 53706

The Center for Environmental Communications and Education Studies is an informal consortium of faculty and students from a number of UW-Madison departments, developed to appropriate cooperative teaching, research, and extension programs. The Center aids the professional training of specialists in environmental communications, sponsors studies of environmental communications media and methods, and provides various symposia and services.

University of Wisconsin, Madison
Department of Agricultural Journalism
Natural Resources Communication
(M.S.)

John H. Fett, Chairman
440 Henry Mall
University of Wisconsin
Madison, WI 53706

To provide individually designed programs to equip natural resources professionals with better communication skills, journalists with more complete environmental knowledge, and both with an understanding of evaluation research.

University of Wisconsin, Madison
Institute for Environmental Studies
Land Resources Program
(M.S., Ph.D.)

Dr. Arthus B. Sacks, Assoc. Director
IES Instructional Program
70 Science Hall
550 N. Park Street
University of Wisconsin
Madison, WI 53706

(Description follows on next page.)

Land Resources is an interdisciplinary program leading to the Master of Science in Land Resources and the Doctor of Philosophy with a major in Land Resources. The degree is especially designed for students who wish to broaden their field of knowledge related to land and natural resources or who, because of employment or other experience, find they need special training in the technical, social, or management aspects of land.

University of Wisconsin,Madison
Institute for Environmental Studies
Water Resources Management Program
(M.S.)

Dr. Arthur B. Sacks, Assoc. Director
Institute for Environmental Studies
Instructional Program
72 Science Hall
550 N. Park Street
University of Wisconsin-Madison
Madison, WI 53706

Water Resources Management is an interdisciplinary program leading to the Master of Science in Water Resources Management. Students gain breadth in relevant planning and management areas while developing depth in one of several area specialties. The program prepares graduates for employment in water resources management activities. In lieu of a thesis a team water resource management project is required, normally resulting in a published report.

University of Wisconsin,
Stevens Point
College of Natural Resources
Environmental Education
(M.S.)

Dr. Richard Wilke
College of Natural Resources
University of Wisconsin
Stevens Point, WI 54481

The College of Natural Resources offers both an undergraduate and graduate program in Environmental Education. Students can specialize in Environmental Education Instruction, Adult and Community Based EE, Environmental Communication or Environmental Interpretation. In all cases students develop competencies in ecology, environmental awareness, issue investigation and evaluation, and environmental action. Relevant practical experience is available for all through the University's Central Wisconsin Environmental Station and Schmeeckle Reserve.

WYOMING

University of Wyoming
Grad. Program in Community &
Regional Planning
Master in Planning Program
(M.P.)

Hans Bleiker, Director
Community & Regional Planning
Program
c/o Dept. of Geography
University of Wyoming
Laramie, WY 82071

(Description follows on next page.)

This program is designed to prepare individuals to function as managers, directors and administrators of multi-disciplinary, public-sector problem-solving/decision-making efforts. The core courses are taught in the format of week-end seminars. This format allows non-local public officials and other working professionals to take the courses with a minimum of interference with their jobs.

CANADA

Simon Fraser University
Faculty of Education
Environmental Education Emphasis
(M.ED., M.A.(ED.) M.Sc.(ED.), Ph.D.)

Dr. Milton McClaren
Associate Professor and
Coordinator
Environmental Education Emphasis
Faculty of Education
Simon Fraser University
Burnaby, British Columbia, V5A 1S6
CANADA

The faculty of education allows students in graduate study in curriculum and instruction to undertake a special emphasis in environmental education. The program takes an interdisciplinary approach to EE, addressing school-based and non-school-based approaches. The program also considers urban studies, outdoor education, and contemporary environmental/social issues.

University of Alberta
Department of Forest Science
Interpretation Studies option of
the Wildland Recreation Program
(M.Sc., Ph.D.)

Dr. James R. Butler
Wildland Recreation &
Interpretation Studies
Department of Forest Science
The University of Alberta
Edmonton, Alberta T6G 2H1
CANADA

Graduate studies in Environmental Interpretation are within the M.Sc. (Wildland Recreation) Degree. Program is directed to the development of Interpretive Managers and researchers more than as practitioners. Strong international focus. Five specific interpretation courses are available for graduate credit. Program has a Parks, Wildlife, Natural Resource Management emphasis.

University of British Columbia,
Vancouver
Resource Management Science
(M.Sc., Ph.D.)

L.M. Lavkulich, Chairman
Resource Management Science
University of British Columbia
3075 West Brook Mall
Vancouver, British Columbia V6T 2A2
CANADA

(Description follows on next page.)

Program is an interdisciplinary program in resource management. Students may specialize in a number of concentrations via land management, wildlife management, fisheries management, range management, water resources management and ecological policy analysis. New concentrations being developed include renewable energy and aqua culture. Programs are "tailor-made" for individual students to meet student desires as well as academic excellence.

The University of Calgary
Faculty of Environmental Design
Environmental Science
(M.E.Des.)

Professor Dixon Thompson,
Programme Director
Faculty of Environmental
Design
The University of Calgary
Calgary, Alberta T2N 1N4
CANADA

The degree Master of Environmental Design (Environmental Science) prepares students for the new and expanding professional and scientific research opportunities in environmental consultant practices and government programmes. It embraces the spectrum of interests, among them, impact assessment, landscape rehabilitation, ecological analysis and modelling and research, wildlife management, energy and water conservation and management. The programme normally requires three years of study. Graduates are in high demand in both public and private sectors.

University of Toronto
Institute for Environmental Studies
Collaborative Programme in Env. St.
(M.A., M.Sc.)

Professor A.P. Grima
Instit. for Environmental Studies
Haultain Building
170 College Street
University of Toronto
Toronto, Ontario M5S 1A4
CANADA

The Institute for Environmental Studies in an interdisciplinary center for research and study which offers association with a wide range of biologists, engineers and social scientists. The primary goal of the Institute is to provide the facilities and academic climate for problem-oriented research to those who wish to maintain their discipline-based academic work. M.A./M.Sc. programmes are therefore undertaken on a collaborative basis with the departments of Geogogy, Botany, Forestry, Zoology, Geography, Anthropology, Political Science and Public Administration.